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Original Communications.

CHOREA—A STUDY IN CLINICAL PATHOLOGY.

BY H. C. WOOD, M.D., LL.D.

PRECISELY as at one time paralysis was supposed to be a disease, so at a later period was chorea believed to be a distinct affection. Indeed, many of the profession still use the term as though it were the name of a distinct ailment, and most of the treatises upon nervous diseases have a chapter upon chorea as a separate affection. It is, however, perfectly clear that the word should be employed as analogous to, or having equal rank with, paralysis or tremor. The term choreic movements is unnecessary; or, if it still be used, the term chorea should be considered to represent that condition in which choreic movements occur.

Of the various diseases or conditions in which choreic movements occur, I shall first speak of that which is known as *post-paralytic chorea*, or sometimes *post-hemiplegic chorea*, and begin by a brief record of a case now under my care.

Miss W., aged 29. At nine months of age, probably after improper feeding, she was seized with a violent convulsion. These convulsions recurred at brief intervals until she was about five years old, when she had an exceedingly

bad one, lasting all night. During this time complete right-sided hemiplegia appeared. Three or four months afterwards she began to have movements in the right arm. These have continued ever since. She had convulsions after this frequently, until about the age of fifteen, when, menstruation setting in, the convulsions became more infrequent, and she has not had one since 1875.

Present condition, a well-nourished, healthy-looking woman. Right side of the face somewhat smaller than the left side of the face, and the left angle of mouth, on smiling, going up very distinctly more than the right. Every time she winks there is a very curious local spasm, covering about the size of half a dollar, in the right side of the chin. Occasionally a slight tremulousness about the right corner of the mouth. The spasms are chiefly in the arm, causing the hand to vibrate rapidly. There are also spasms of the forearm, causing disorderly movements of the fingers; right hand registered on the dynamometer 45, left hand 75 ; while the right-arm muscles are apparently bigger than the left. There is a perpetual perspiration on the right arm. The deltoid muscle evidently takes part in the spasm, and is exceedingly large. There is slight loss of sensation in the right arm. By fixing the hand against the body, immediately under the right breast, she is able to do such work as crochetting. Complains much of pain in the upper arm, especially in the region of the deltoid. This pain is worse on getting up in the morning. She does not know about spasms during sleep, but generally lies on her arm. General intelligence and health perfect.

This case is especially interesting on account of the co-association of winking with a very peculiar local spasm involving only a few fibres of the facial nerve. In some way the oculo-motor centres have become linked with a few cells of one facial nucleus, so that one reflex nerve-discharge influences the three centres, a combination very difficult to explain.

This case illustrates many of the peculiarities of this so-called post-hemiplegic chorea, but it seems to me as absurd to speak of this condition as a distinct affection as it would be of contractures occurring after an apoplexy. There are, however, certain very curious facts connected with the affection worthy of here being noted. Very generally there is associated with it a loss of sensibility ; then again the movements are almost always confined to the upper extremities. Although in some of the reported cases there was a lack of control over the movements of the leg, I cannot recall a single instance in which there were in the leg decided spasmodic movements such as occur in the arm of Miss W.

The following case of chorea now under my care at the University Hospital is in many respects closely allied to the cerebral chorea of early childhood, and seems worthy of being noted, although the history of it is very imperfect. The patient is a young man 19 years of age, well nourished, muscular, who for the last three years has followed the occupation of driving trotting-horses, both in training and races. He states that his present difficulty began when he was four years of age, and that two years since the movements were greater than they are at present: except for the movements, the health is perfect, and the muscular power of the whole body is much above the average. The movements are confined to the upper extremities, including the group of shoulder muscles; they are worse in the right than in the left arm; are constant during the day; do not interfere with his going to sleep, and always cease at such time. They are greatly increased by excitement, or when he attempts any movement with his arms under observation. They are much lessened by any steady muscular act, such as driving a hard-mouthed horse or firmly grasping a chair. They are mostly typical choreiform movements, but at times when he is very much excited become so marked as to appear almost like voluntary movements. The patella reflexes are very active, and there is in the right arm a slight but distinct finger-reflex when the tendons on the wrist are tapped.

The following extract from my note-book shows that the loss of sensibility is very slight, and I am not sure whether the lesion is spinal or cerebral, although inclined to the latter view. "Lowest point of separation of points. *Right arm*—back and front of forearm, 7.5 cm. ; palm, 0.6 cm. ; tips of fingers, 0.4 cm. ; back of fingers, 0.5 cm. ; region of biceps and of deltoid, 7 cm. *Left arm*—upper and forearm as on other side ; tips of fingers, 0.2 cm. ; back of fingers, 0.5 cm."

There are two classes of these cases, one in which the choreic movements develop at the same time as the palsy, or even before it, and one in which they first appear long after the loss of power. It is very desirable that close microscopical examinations should be made in the latter class of cases, as it is very possible that the symptoms may be connected

with secondary degenerations. Such connection is established for post-paralytic contractures, and there is reported in the *Hospital Gazette* (vol. iv. p. 366) a case in which such contractures co-existed with choreic movements, and in which there was almost certainly secondary degeneration of the nerve-centres.

The seat of the lesion in post-hemiplegic chorea, as first stated by Charcot, and especially developed in the thesis of his pupil, Raymond, is in the posterior part of the internal capsule, in the immediate neighborhood of the lenticular nucleus and optic thalamus. The immediate band of fibres of the corona radiata especially involved is in front of that connected with and covering the posterior end of the optic thalamus. This region, it will be remembered, is a very distinct one, having its own artery, the posterior optic. Although in many cases of post-hemiplegic chorea the lesion is located in the spot designated by the great French neurologist, such location is not invariable. M. Demange (*Rev. de Méd.*, March, 1883, p. 377), after reporting a case with Charcot's lesion, records one in which there was violent post-hemiplegic chorea, and in which the lesion was situated in the convolutions. It is a very interesting feature in this case that the choreic movements were preceded by epileptiform crises, which ceased when the choreic movements developed. The choreic movements themselves also disappeared before death. In two cases of cerebral syphilis, with presumably cortical lesion, I have seen a violent choreiform spasm of the face replace epileptiform convulsions, and there is a close analogy between post-hemiplegic chorea and Jacksonian epilepsy. Dr. Demange reports a case in which hemiplegia was associated with severe tremblings, like those of paralysis agitans, and the lesion was situated in the lenticular nucleus. This form of tremor may, however, be considered distinct from true post-hemiplegic chorea, but in the *Bulletin of the Anatomical Society of Paris*, 1879 (vol. liv. p. 748), is recorded a case in which a true post-paralytic chorea was found to depend upon a softening of the brain on the level of the first convolution, involving the whole thickness of the external capsule, as the sole lesion. This case separates itself from those of Charcot in the complete preservation of sensibility, and as the choreic movements developed months after the coming on of the paralysis, it is fair to suspect the presence of an unobserved secondary degeneration.

A very important fact in the natural history of post-hemiplegic chorea is that it may exist in its most typical form without organic lesion, as is shown by the case reported in the *Bulletin of the Anatomical Society* (vol. lv. p. 150). A woman, aged 49, with a past hysterical history, and also one of chronic iritis and arterial atheroma, but who denied syphilis, suffered paresthesias in the right arm and leg, with vertigo, lasting for some days. She then had a sudden right hemiplegia, without loss of consciousness. The paralysis was at first complete, but eight days later she began to walk a little. Two months after this she had a second attack. Several months subsequent to this she entered the hospital. At that time she had complete right-sided hemiplegia both of common sensibility and of the special senses, and a partial right motor hemiplegia, with very marked choreic movement of the right arm. Neither the right leg nor the left side were in movement. She died of an intercurrent pneumonia, and after death a very careful microscopic examination of the brain failed to detect any lesion. During life a murmur of an aortic insufficiency had been heard, and after death the appropriate lesion was found. It seems to me that the reporter of this history is correct in affirming that during life it was impossible to determine that the case was not one of cerebral disease. This case brings up clearly the possibility that in some even of these prolonged post-paralytic choreas there may be no organic affection.

Not only may post-hemiplegic, but also other forms of chorea be imitated by hysteria. I have not rarely seen cases offering the ordinary manifestations of Saint Vitus's dance of childhood in extremely hysterical young females, and believe them to be of pure hysterical origin.

The so-called *electric chorea* of French writers is evidently, in many cases, hysterical. It consists of very rapid, rhythmical movements of the head or other portions of the body, occurring at intervals, as though in a series of shocks. A very interesting case is reported in the Thesis of Andrè Guertin, Paris, 1881, which shows that this electric chorea may coexist with general choreic movements, exactly resembling those of the Saint Vitus's dance. In some cases of hysteria the movements are entirely rhythmical, and it is perfectly evident all forms of choreic spasms may be produced by hysteria.

The truth of the following propositions may be considered established by facts which have been already adduced :

First.—Choreic movements may be the result of organic brain-disease.

Second.—Choreic movements exactly simulating those of organic brain-disease may occur without any appreciable disease of the nerve-centres.

Third.—General choreic movements, as well as the bizarre forms of electric and rhythmical chorea, may occur without any organic disease of the nervous system.

To these propositions may be added a *fourth*, viz.: Choreic movements may be the result of a peripheral irritation, or, in other words, may be reflex.

As proof of the last proposition, I would cite the following cases:

Dr. C. Fischer reports (*Zeitschrift f. Wundärzte*, 1853, Bd. 6, p. 89) the case of a young peasant girl, who suffered from a violent periodontitis, and a futile attempt at a removal of the tooth. The operation was followed by the formation of an abscess, and marked unilateral chorea, which lasted two years, when Dr. Fischer removed the roots of the tooth, and the movements ceased at once.

Dr. R. Fischer (*Oester. Med. Wochenschrift*, 1841, p. 46) reports a case in which a general chorea ceased at once upon the expulsion of a tapeworm. Dr. Edmond Censier records a case similar to this in the *Gaz. Méd.-Chir. de Toulouse*, 1877, p. 43. The chorea was so violent as to threaten life, and had persisted several months, notwithstanding treatment. Amelioration began five days after the expulsion of the parasite, was very rapid, and resulted in complete cure.

In the *Journ. de Méd. et de Chirurg.*, Paris, 1841, is the record of a case in which chorea of one month's duration was immediately arrested by the expulsion of lumbricoid worms.

M. Borelli reports (*Bulletin de la Soc. de Chirurgie*, 1852, p. 292) the case of a boy thirteen years old, in whom a violent chorea, which had resisted all treatment for six months, was cured by the removal of a neuromatous tumor from beneath the foot. The movements became less the day after the operation, and by the fourth day had ceased entirely.

Further citations of cases might readily be made, and especially an abundance of opinion be obtained from recognized authorities, as showing the occasional dependence of chorea upon the presence of intestinal worms; but I think enough has been here said for the purpose. The chorea which occurs during pregnancy is also probably of reflex origin.

There is a form of chorea which is not uncommon in the young of certain of our carnivorous domestic animals. I have never seen a case in herbivora; but Prof. Huidekoper, of the Veterinary Department of the University of Pennsylvania, informs me that he has treated the disease in calves.

The relations of this disease with the chorea of childhood have been considerably discussed, with difference of conclusions. I shall postpone the consideration of this question until after a study of the animal chorea, of which I have seen a number of examples. It is impossible to experiment, except within very narrow limits, upon human beings, and hence it is only by the light of investigations upon the lower animals that we can hope to come to any very definite conclusions. In such investigations, the points to be inquired into are as to the seat and nature of the lesion, and as to the effect of external irritations upon the symptoms themselves.

The first study of this affection directed towards the discovery of the seat of the lesion of which I have knowledge is that of Prof. Chauvet (*Mem. et Compt. Rend. Soc. de Sci. Méd. de Lyon*). I have never seen this paper, but it is quoted as affirming that the movements persist in the hind legs after section of the spinal cord.

In April, 1869, M. Carviler presented to the Société de Biologie (*Compt. Rend. Soc. Biolog.*, 1869, p. 154) an account of some experiments upon a choreic dog, with persistence of movements after section of the cord in the middle dorsal region. The peculiarity in this report is the assertion that after section of the cord the movements of the face, front and hind legs were perfectly isochronous. It seems to me that it is scarcely possible for such isochronous movements to occur when the spinal cord has been completely severed, as the simultaneousness of movement could only depend upon nerve-waves running down an uninterrupted cord. It is therefore a natural suspicion that the cord was not entirely divided.

The most elaborate study of the subject is that of Legros and Onimus (*Journ. de l'Anat. et de la Physiolog.*, 1870–71, p. 403). These observers found that the movements are not synchronous with the beat of the heart, and do not vary *pari passu* with the cardiac pulsation; that they are not arrested by section of the spinal cord, but are to a certain extent by the action of the cerebrum, for a sudden loud noise would for a time cause them to cease; that they are very sensibly affected by chloral; that division of the sensitive roots of an iso-

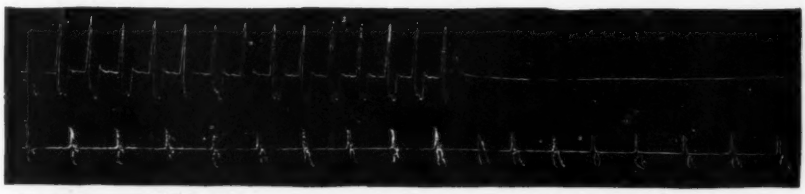
lated section of the cord lessens, but does not arrest, the movements; and that a galvanic current passed down the spinal cord greatly diminished the activity of the movements, but when passed up the cord increased the amplitude and rapidity of the choreic vibrations.

Dr. Hughlings Jackson also noticed the persistence of the choreic movements after section of the spinal cord (*London Lancet*, 1875, vol. i.), but Dr. James J. Putnam (*Boston Med. and Surg. Journ.*, 1879, vol. ci. p. 690) failed to obtain the movements after section of the cord in a choreic kitten. There can be no doubt that this failure was due, as Dr. Putnam himself suggests, to the kitten being killed too soon after the section of the cord. My own experiments prove that when the division is made low down, the shock of the operation prevents the reappearance of the movements for a considerable period after the recovery of consciousness.

In the first case in which I experimented (as shown in the tracing herewith submitted), the movements were arrested by ether, and after division of the cord in the upper dorsal region did not reappear for over a quarter of an hour after complete recovery of consciousness. They first made their reappearance in the hind legs, and afterwards in the front legs. The movements were finally much more violent in the hind legs than they had been before section; but all synchronism between the front and hind legs was completely set aside by the section.

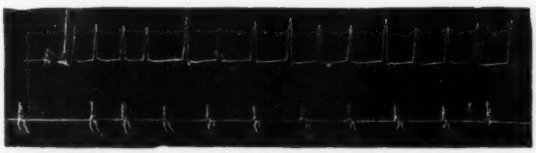
In the second experiment the movements were rhythmical, and, as is often the case, were most marked in the opposing front and hind legs. They were, as in the first case, immediately stopped by ether. The cord was cut in the lower dorsal region, and the movements reoccurred in the front leg so soon as the effect of the anæsthetic had gone off, but did not come back in the hind legs for over an hour after the return of consciousness. It is plain to my mind that the shock of section of the cord has an effect upon these movements. In the first experiment, the front legs were nearest the seat of section, and recurrence of their

A



Tracing 1.—A, the point where the drum was stopped and allowed to again revolve when etherization was complete.

A



Tracing 2.—A, the point where drum was started so soon as effect of ether had passed off.

A

Tracing 3.—A, the point where drum was stopped until the effect of shock had entirely passed by, showing that the movements of the feet were much greater after than before the section. Compare with Tracing 1.

movements was longest put off. In the second experiment, the section was practised very low down and the hind legs were inordinately influenced. In the choreic dog, as in the child, the movements can certainly be inhibited temporarily by the cerebrum.

This cerebral inhibition is readily explained upon the theory of Setschenow's centre in the brain, but inhibition may certainly occur independent of any cerebral action. The cord was thoroughly cut in the second animal experimented upon, as was proven not only by the paralysis of the hind legs, but also by the fact that no pain was caused by very powerful irritation of an exposed sensory nerve of the largest size. Under these circumstances, the choreic movements were very markedly inhibited by galvanization of the sciatic nerve, as is shown by the photographic reproduction of the tracing made. (See tracing No. 4.) The upper line represents the writing of the movements of the right leg, the lower line the time of application of the current. This experiment affords direct proof that there are inhibitory centres in the cord, or else that the ganglionic motor cells of the cord are directly inhibited by peripheral impulses.

From a pathological point of view, the experiments upon the section of the cord just detailed are of great importance as fixing the seat of the lesion. They have been so often repeated with such concordant results, that we must consider it settled that the movements in the choreic dog originate in the spinal cord, and that the spinal cord is the seat of the lesion; of course the observed facts do not prove that the brain ganglionic cells are in a normal condition; indeed, the actions of the choreic dog indicate that they share the abnormal condition of the spinal cells.

In 1875 (*London Lancet*, vol. i. p. 610), Dr. Gowers examined the spinal cord of a choreic dog and found no structural alteration. Two years subsequently, however, Drs. Gowers and Sankey (*Medico-Chirurgical Transactions*, London, 1877) determined the presence of lesions in the cord of another animal. They give of it the following account:

"The most conspicuous change was the infiltration of limited areas with small round 'lymphoid' cells, which varied in size, the average being .0075 mm. In most cells no nucleus was visible, but in some a large round nucleus occupied about half or two-thirds of the area of the cell. These cells were not uniformly infiltrated in the affected areas. In the white substance they aggregated in tracts, often branching and extending through part or the whole of the affected column. When the infiltration affected the gray substance it was more uniform; but here, also, the corpuscles were aggregated in masses as well as scattered. The aggregations in both gray and white

Tracing 4.—Showing the inhibition of movement by the galvanization of the sciatic nerve after section of the spinal cord.

matter corresponded to the course of vessels. Whenever a section divided such a tract transversely, a vessel could always be detected in its centre. Where the infiltration was extensive, the corpuscles were so densely massed that the individual cells could scarcely be distinguished ; but where it was slighter, a vessel could often be seen to be encrusted with a layer of such cells. In some places a few only lay in the perivascular sheath, but in other places similar corpuscles lay outside the perivascular sheath and in the adjacent tissue. In the white substance in the neighborhood of these tracts similar cells lay among the nerve-fibres, and in some places were so numerous as to occupy a larger area than the nerve-fibres. In some places, indeed, the nerve-elements appeared to have been destroyed.

"These cells were deeply stained with carmine, and still more deeply by logwood. They resemble closely white blood-corpuscles in size and appearance. (The measurements given above correspond closely to those of white blood-corpuscles in hardened tissues.) They were identical in appearance with the white blood-corpuscles which were seen here and there among the blood-disks within the vessels. In some sections the walls of the vessels appeared to contain similar cells, as if in the process of diapedesis. From these appearances we are inclined to regard these cells as being actually white blood-corpuscles, and the morbid change as a *leucocytal infiltration.*"

In 1879, Dr. J. J. Putnam (*Boston Med. and Surg. Journ.*, vol. ci. p. 691) examined very carefully the nervous system of two kittens which had suffered from chorea. In neither of these animals were there any alterations at all similar to those described by Gowers and Sankey. There were no abnormal leucocytes in any of the nerve-centres. In one kitten no change whatsoever could be found in any of the nerve centres. In the second there was a marked injection of the blood-vessels, and the ganglion-cells in the spinal cord, as well as those in the brain, failed to imbibe the staining fluids, and even in glycerine could not be satisfactorily studied.

I have examined the spinal cord of four dogs. Three of the dogs were killed while still able to go about. Two of them suffered from typical rhythmic chorea, one from a chorea with movements exactly simulating those of a child, and associated with great weakness. The fourth animal died of the disease, after having completely lost control of his hind legs. In each of these cases there were numerous lymphoidal cells in the gray matter, very few, if any, of them appearing in the white matter. The cells were mostly scattered, but sometimes occurred in groups of eight or more.. They were distinctly granular, and some of them were nucleated. The nuclei were usually small, but in some cases were large, nearly filling the cells. In none except dog No. 4 could any connection whatever be made out between these cells and the blood-vessels, the perivascular spaces being entirely free. In the dog that died of the disease, the cells were more numerous than in the others, and could in some instances be found in the perivascular spaces. In no instance, however, was there any such outpouring of leucocytes as is described by Gower and Sankey.

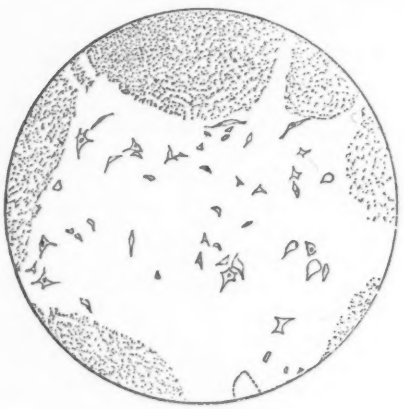
An examination of healthy dogs shows that these lymphoidal cells are to be found in the normal cord. They are, however, not so numerous as in the severe cases of chorea examined ; but I could not make out any congestion of the blood-vessels or other lesions which seemed to indicate that the outpouring of these leucocytes was the cause of the symptoms. On the other hand, my studies have clearly shown that the ganglionic cells of the cord are profoundly affected.

It has already been stated that Dr. Putnam noticed in one of his kittens that the ganglionic cells would not take the staining fluid. This represents the earliest alteration that is to be distinctly recognized. In my dog that died with paraplegia the change was more pronounced and widespread than in either of the others.

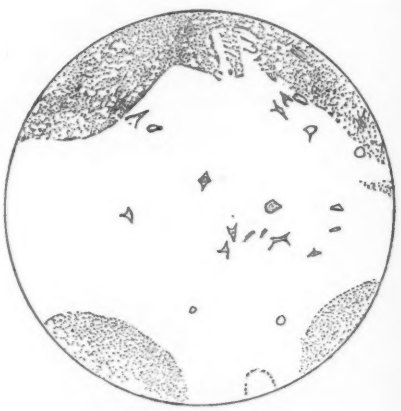
The motor cells in the dog's cord are obscurely arranged in three groups. Just posterior to the spinal canal, and at a little distance laterally from it, is a small group of very large cells. In the extreme anterior portion of the gray matter is a much larger group of similar cells, whilst in the lateral peripheral portions of the gray matter are numerous cells, mostly smaller than those just spoken of. Whilst this general topographical description is the most correct that can be made, I have found that the position of the cells really varies very much, not only on different levels of the cord, but in the two sides of the same section.

In my paraplegic dog the group of spinal ganglion-cells nearest the spinal canal was the most profoundly affected. As seen with a low power, the cells could not be discovered ; but when the higher powers of the microscope were used, it was found that their position

was occupied by irregular, globose, crumpled-looking masses, without sharp outline, and taking the staining very faintly. No granulations, no nuclei, no processes were apparent. These masses certainly represent the cells in the last stages of degeneration, and were of various sizes. The cells of the other group were plainly altered. They took the staining very faintly. In a large proportion of them no nuclei could be found, and in quite a number about one-fourth of their contents was occupied by a large mass, having a sharp definite outline, free from granular contents, and having the appearance of a vacuole. Within this body was a nucleus or nucleolus, so that the body itself was probably an altered nucleus, but I have never seen anything like it in the normal cord. In many cases the pro-



Normal cord.



Choreic cord, paraplegia.

Figs. 1 and 2 are reproductions of camera drawing with low power, to show disappearance of ganglion-cells. The outline below is of edge of spinal canal.

cesses were gone, and the irregular borders of the cells were completely wanting in definiteness. In some instances globose masses of degenerated protoplasm, similar to those described a few lines above, occupied the places of some of the cells.

In the dog which had the choreic movements like those of St. Vitus's dance there were cells which had undergone extreme degeneration, but they were not so numerous as in the preceding case. In the sections examined it was also the peripheral cells which were most affected. It is probable that this location varies, and that more numerous sections of the two cords than I examined would show in some place in each cord one group, in other places other groups of cells were the most severely attacked.

In the milder cases of the disease, when the animal had been killed in the early stages, the only changes in the cells were the very frequent absence of the nuclei, the failure of granulations in the protoplasm, the loss of power to take staining fluids, and rarely the occurrence of sharply-defined vacuoles.

The evidence which we now have concerning the changes of the nervous system in canine chorea is sufficient to establish definite conclusions. The lesion which was found by Gowers and Sankey is evidently an accidental one, as it has not been present in one case examined by Dr. Gowers himself, and in half a dozen cases examined by other equally competent observers. This infiltration with leucocytes may be viewed as the result of a congestion of the part. Now it is well known that when functional excitement arises from congestion, the congestion precedes the functional excitement; and if the congestion were in the dog the cause of the choreic movements, it ought always to be discovered so soon as the latter were fairly established. On the other hand, functional excitement produces congestion, and in such cases the congestion follows the functional excitement, and varies very much in different cases, even when the excess of functional activity is apparently the same. If, then, the infiltration observed by Gowers and Sankey was the result of a functional excitement of the motor cells of the spinal cord, its absence in other cases is no more than ought to be expected.

It seems to me clear that the basal lesion of canine chorea is a peculiar condition of the motor cells of the spinal cord, which condition is at first, and may long continue to be, functional, but which finally may develop into organic change. It must be remembered

that the distinction between functional and organic disease is a purely arbitrary one. Functional movements are the results of nutritive changes, and a functional disorder is one in which the nutritive changes have occurred, but have not sufficiently advanced to be recognized by our comparatively gross methods of study. The structure of the ganglionic nerve-cells is so complex in its ultimate nature, and yet so simple in its microscopic appearances, that it may be permanently and very seriously altered without leaving a physical trace which we can recognize. The first change in canine chorea is an altered nutrition, *i.e.*, functional excitement (or depression), of the multipolar cells of the spinal cord. This altered nutrition may continue until the structure of the cells is entirely destroyed, but it may never go beyond the condition of change so non-apparent as to be unappreciable to us. The studies of Dr. Putnam show that the cells of the brain in the kitten are in a similarly altered condition to those of the spinal cord, and it is most probable that although the movements originate in the altered nutrition of the spinal cells, yet throughout the nervous system the ganglionic nerve-masses suffer, so that the disorder is really a condition affecting not merely the spinal, but rather the whole nervous system.

It is a matter of great interest to decide whether the canine chorea is the same disease as the St. Vitus's dance of children. Except in the case of contagious diseases, it is impossible to determine with absolute positiveness that a certain disease in the animal represents a certain disease in the man, but to my mind it is plain that if canine chorea be not the same disorder as St. Vitus's dance of childhood, it is very closely allied to it.

It is true that the movements in canine chorea are usually rhythmical, whilst the movements in the child are ordinarily not so, and much has been made out of this difference. I have, however, seen dogs in which the movements were not rhythmical, but had all the *gaucherie* of the chorea of childhood, and in some cases of children the choreic movements do approximate the rhythmical type.

The points of resemblance in the two affections are very close and striking. In each disease it is the young which are especially attacked; in each the chief symptoms are those of disordered motion; each affection is connected with a constitutional disorder (rheumatism in the child and distemper in the dog); in each case the movements can be temporarily inhibited by the will, are not accompanied with disorder of sensation, and are associated with loss of power and lowered general nerve tone; finally, in each disease arsenic is recognized as the standard remedy.

Even if canine chorea be considered essentially distinct from the St. Vitus's dance of childhood, it cannot be denied that the laws which preside over the nervous system of the dog are essentially the same as those which rule the human nervous system, and the following proposition must apply to man as well as to the dog:

Fifth.—Choreic movements may depend for their origin upon a diseased condition of the motor cells of the spinal cord, which diseased condition may not impair the structure sufficiently for the alteration to be recognized by our instruments, and hence may be functional; or may go on to the production of marked change in the ganglionic cells, or even to their total destruction, when it is entitled to rank as an organic affection.

When we approach immediately the discussion of the nature of St. Vitus's dance of childhood, we find that numerous post-mortems have been made upon this disease with very varying results. In my opinion the older autopsies ought to be disregarded. The means of investigation were so imperfect, and were so imperfectly used, that the danger of being misled by these observations is greater than the chance of receiving enlightenment. Nevertheless, it seems to me that, after throwing overboard much rubbish, there remain certain cases, in which after properly conducted autopsies no appreciable lesion could be found. The positive results which have been reached in other cases are best glanced at under two heads: First, brain alteration. Secondly, alteration of the spinal cord.

Among the most remarkable papers upon the brain-lesions of chorea is that of Dr. Broadbent, who has demonstrated that the corpus striatum and thalamus opticus are in some cases the location of the lesion. Dr. B. states that a variety of morbid conditions of these ganglia may produce chorea, but the most frequent alteration in his cases was a capillary embolism of the corpus striatum, thalmus opticus, and their vicinity. A number of autopsies have been made confirming the existence of capillary embolism in the brain in fatal chorea, and it would seem as though there was an intimate relation between chorea and this condition of the brain. The association is too frequent and too peculiar

to be merely the result of a chance. On the other hand, it is perfectly evident that in many cases of chorea no such lesion exists. It is absurd to suppose that the chorea which is produced in a few hours by a fright, and is cured in a few days by arsenic, is the result of so serious an organic lesion as that indicated. Moreover, there have been an abundance of autopsies in which capillary embolism did not exist. Again, as in the case reported by Tuckwell, other changes in the brain have been noted besides those of embolism. It must, therefore, be concluded that an acute chorea may be intimately associated with minute cerebral embolism and also with other lesions of the brain; among which lesions may be especially mentioned the peculiar alteration of the ganglionic cells of the brain noted by Meynert as pervading the whole organ in a case of chorea.

In regard to the spinal cord, the following paragraph from the article of Von Ziemssen in his Encyclopædia expresses the evidence to the date of its writing, 1877: "In the spinal cord alterations have been repeatedly found, namely, hyperæmia of the medulla and the membranes, softening of the cervical and also of the dorsal medulla (Romberg, Ogle, Gray, Golgi, De Beauvais, Hine, Brown-Séquard, Lockhart-Clarke); interstitial proliferation of nuclei and hyperplasia (Rokitansky, Steiner, Meynert, Elischer), and sometimes serous exudation in the central canal, proliferation of nuclei in the adventitia of the vessels, and regressive metamorphosis in the ganglion-cells (Elischer)." Since this paragraph was penned spinal lesions have been discovered in chorea by Dr. Dickinson, by Dr. Bury, and by Dr. James Ross. According to Dr. Dickinson, the part of the cord especially affected in the disease is "the central portion of each lateral mass of gray matter comprising the root of each posterior horn."

Dr. Ross says of a case, "I was struck with the alteration presented by the accessory cells of the anterior gray horns; they appeared shrivelled, their protoplasm was granular, their nuclei were obscured, and many of their processes were indistinct or absent."

Without indulging in further quotations, it may be stated that we have the evidence of at least five or six different observers as to the alterations of the spinal ganglionic cells in acute human chorea, and that in numerous cases these alterations in all probability existed, but were not noted simply because they were overlooked. I do not mean to assert that an appreciable lesion of the spinal cells is always to be found in St. Vitus's dance; indeed, I am quite confident that the disease may prove fatal without such lesion. Nevertheless, I am well assured that such alterations are very frequent in fatal cases, and have in not a few instances been overlooked because not appreciated and sought for.

The marked tendency of the choreic movements to affect one side of the body or one limb has led many observers to confine their careful examinations to the brain, this hemi- or monoplegic tendency being believed to show that the movements originate in the brain and not in the spinal cord. A clinical study of the various human affections of the motor ganglia of the cord shows, however, that in such disorders spinal monoplegias are not at all uncommon, and that in some cases hemiplegias may be seen. In many cases of chorea of the dog this localization of the movements in one limb or in one side of the body is quite pronounced; indeed, this was the case in dogs in which I positively determined the spinal cord to be the seat of the lesion: it cannot therefore be considered that a hemiplegic much less that a monoplegic chorea is necessarily of brain origin.

It is plain that the similarity of the lesions which have been recently noted in the ganglionic cells of the spinal cord in fatal cases of human chorea with those which I have found in the dog is very apparent, and increases the probability that the two affections are essentially the same disorder. Whether this be so or not, considerations previously detailed (see proposition five) show that choreic movements in the child, as in the dog, may originate from a diseased condition of the ganglionic spinal cell. Further, as a diseased condition of the spinal ganglionic cells has been found in several cases of human chorea, it must be allowed that such diseased state is at least one of the fundamental pathological alterations of human chorea. It is perfectly clear, on the other hand, that the disorder is not confined to these multipolar cells. The researches of Dr. Putnam, already quoted, show that in the cat alterations may be found, at least in some cases, in the brain ganglionic cells, and every clinician knows that the cerebral functions are often profoundly affected in the choreic child. The will, the intellectual and the emotional faculties are all prone to show the presence of an abnormal influence in chorea, and it seems, therefore, that we must consider that in the *choreic child the ganglionic cells in the whole cerebro-spinal system suffer, and that this alteration is the base of the disease:* or, in other

words, the *morbid pathology of chorea, or St. Vitus's dance of childhood, may be said to be a diseased condition of the ganglionic structures of the cerebro-spinal axis, which abnormal state may exist without alterations of structure sufficient to be determined by the microscope, or may go on until it is accompanied with marked structural lesions.* Further, this condition must be looked upon as one of lowered tone, and it must be allowed that it may be produced by various causes, but is little prone to occur in persons of robust nervous system. The vital choreic depression of the nerve-cells may be the result of emotional disturbance, as in the chorea produced by fright. It may be the result of the influence of the rheumatic diathesis or poison upon the affected tissues. It may be the result of the partial occlusion of the circulation by cerebral capillary thrombosis or embolism, and there are probably other efficient causes in its production. The course of a chorea, as well as the severity of the symptoms, very naturally depends upon the cause of the abnormal condition, and hence we have the varieties so plainly marked in this so-called disease.

*THE PHYSIOLOGICAL ACTION OF THE OILS OF WINTERGREEN AND BIRCH.**

By Samuel V. Able, M.D., Easton, Pa.

THE first experiments upon the chemical composition of oil of wintergreen were made by Professor Proctor, and afterwards by Cahours. Recent investigation by H. P. Pettigrew† shows that the oil of birch is not identical with the oil of wintergreen, since the former consists entirely of salicylate of methyl, and contains no terpene. Oil of wintergreen, sp. gr. 1.17, contains about three per cent. of terpene. To this fact is due the slight difference in odor and specific gravity between the two oils. As the physiological action of either oil has not yet been studied, and having lost a friend by poisoning with the oil of birch, I thought it a desirable subject of investigation. The experiments were made upon frogs and cats. The purity of the oil was established beyond doubt.

Motor Nerves.—The first experiments were made to determine the effects on the motor nerves. To accomplish this I used Du Bois-Reymond's induction apparatus. The distance between the coils, using the weakest current that would cause a contraction, expressed the degree of irritability.

Experiment 1.—Frog, at 3–44 P.M., received 16 drops of oil of wintergreen subcutaneously; at 3–45 P.M., hops about; 3–50 P.M., considerable loss of power in the extremities; 3–52 P.M., completely paralyzed; 4–05 P.M., heart-beats, 54 per minute.

Experiment 2.—Frog, at 3–01 P.M., received 16 drops of the oil of wintergreen subcutaneously; 3–02 P.M., commences to assume the prone position, some loss of power in the anterior extremities; 3–05 P.M., considerable reduction in sensibility; 3–07 P.M., marked loss of power in all the extremities, cannot hop; loss of sensibility is, however, greater than the loss of power; 3–25 P.M., complete loss of voluntary motion and sensibility; left sciatic irritable at 335 millimetres; heart-beats, 56 per minute.

The above experiments indicate that the loss of power is not due to want of irritability of the motor nerves, but is central in origin; in other words, that the oil acts on the cerebro-spinal axis.

Sensory Nerves.—To determine the action upon the sensory nerves, the tissues, including the blood-vessels of one posterior extremity, were ligated, the nerve only not being included in the ligature. This would prevent the drug affecting the peripheral endings of the nerves of that limb.

Experiment 3.—Frog, tissues of the left posterior extremity were ligated, excepting the sciatic nerve; 3–40 P.M., received subcutaneously 16 drops of the oil of wintergreen; 3–42 P.M., great loss of sensibility in both hind limbs; 3–55 P.M., sulphuric acid caused no reaction when applied to either posterior extremity. The motor nerves were irritable at 470 millimetres; heart arrested.

This experiment proves that the loss of sensibility is not in the peripheral ends of the sensory nerves, for, were this the case, the sensibility would have persisted in the extremity which was protected by the ligature from the poison. The experiment shows that the loss of sensibility is equal in both posterior extremities, and therefore leads to the conclusion that the want of sensibility is due to central depression.

Circulation.—The experiments were made upon cats bound down on Czermack's holder. The carotid was attached to a mercurial manometer which wrote on Ludwig's kymographion. A clock broke an electrical cur-

* American Journal of Pharmacy, 1884.

† This thesis received honorable mention at the last commencement of Jefferson Medical College.

rent every second, causing a marker to record the seconds on the smoked paper of the drum. The jugular was bared and a canula inserted, through which the oil was injected toward the heart.

Experiment 1.—Cat, etherized; jugular and carotid laid bare.

Time.	Pulse in 15 seconds.	Pressure in mm. of mercury.
4–15–0 P.M.	47	152
8 drops of oil of wintergreen injected through the jugular vein.		
4–15–15	60	114
4–15–30	76	120
4–15–45	74	136
4–16– 0	60	160
4–16–15	49	154
4–16–30	49	154
4–16–45	49	164
4–17– 0	46	160
4–22– 0	49	166
32 drops of oil of wintergreen injected through the jugular.		
4–22–15	40	152
4–22–45	58	84
4–23– 0	47	80
4–23–15	47	90
4–23–30	48	100
4–24– 0	52	130
4–50– 0	56	190
32 drops of oil of wintergreen injected through the jugular.		
4–50–15	40	160
4–55–30	43	104
4–56–30	50	66
5– 0 –0, the animal died; respiration arrested before circulation; chest opened; heart dilated and motionless; blood fluid.		

Experiment 2.—Cat, etherized; jugular and carotid laid bare.

Time.	Pulse.	Pressure.
4–50– 0 P.M.	67	150
4–50–15, 32 drops of oil of wintergreen injected through the jugular.		
4–50–30	54	130
4–50–45	58	110
4–51– 0	59	90
4–51–15	61	80
4–51–30	58	80
4–51–45	35	90
4–52– 0	39	92
4–52–15	41	92
4–52–30	28	98
4–52–45	34	94
4–53– 0	36	94
4–53–15	33	98
4–53–30	33	94
4–53–45	36	96
4–54– 0	31	92
4–54–15	32	92
4–54–	36	100
4–54–45	33	102
4–55– 0	36	108
4–55–15	31	110
4–55–30	30	108
4–55–45	33	108
4–56– 0	33	106
4–56–15	30	104
4–56–30	31	103
4–57– 0	28	104
4–57–15	33	110
4–57–30	27	108
4–57–45	28	104
4–58– 0	29	108
4–58–15	28	106
4–59– 0	33	118
5–59–15	24	124
5–59–30	32	126
5–59–45	31	126
6– 0– 0	39	124
6– 0–15	30	120
6– 0–30	30	120
6– 0–45	28	122
6– 1– 0	30	120
6– 1–15	32	120
6– 1–30	30	124
6– 1–45	31	124
6– 2– 0	30	120
6– 2–15	30	120
6– 2–30	30	120
6– 2–45	30	120
6– 3– 0	30	120
6–14–15	35	120
6–14–45, 32 drops of oil of wintergreen injected through the jugular.		
6–15– 0	48	84
6–15–15	48	72
6–15–30	44	66
6–15–45	40	52
Respiration arrested.		
6–16– 0	...	50

From the above experiment the conclusion is reached that in small doses the oil of wintergreen accelerates the pulse. In large doses the pulse is permanently depressed. The pressure with small doses is first depressed and then increased: with large doses the blood-pressure is permanently reduced.

Experiment 3.—Cat, etherized; pneumogastric nerves divided.

Time.	Pulse.	Pressure.
4–10– 0 P.M.	49	220
4–10–15, 32 drops of oil of wintergreen injected through the jugular.		
4–10–30	62	190
4–11– 0	...	50

Experiment 4.—Cat, etherized; pneumogastric nerves divided.

Time.	Pulse.	Pressure.
4–33– 0 P.M.	62	222
4–33–45, 8 drops of oil of wintergreen injected through the jugular.		
4–34– 0	71	166
4–34–15	60	166
4–34–45	65	166
4–35– 0	67	166

Time.	Pulse.	Pressure.
4-35-15	66	166
4-35-30	67	166
4-35-45	68	166
4-36-30	69	190
4-41- 0	54	166

After dividing the pneumogastrics, the oil in small doses still primarily accelerates the pulse, showing that the increase in pulse-rate is not due to paralysis of the cardio-inhibitory centres in the medulla oblongata.

Experiment 5.—Cat, etherized; atropine injected through the jugular in sufficient quantity to paralyze the pneumogastrics.

Time.	Pulse.	Pressure.
4-41- 0 P.M.	69	234
4-41-15, 16 drops of oil of wintergreen injected through the jugular.		
4-41-30	63	130
4-41-45	64	112
4-42- 0	56	90
4-42-15	57	80
4-42-30	59	68
4-42-45	59	58

The above experiment shows that, when the peripheral ends of the pneumogastric are paralyzed, large doses of oil of wintergreen depress the pulse as usual. Hence the cardiac depression must, therefore, be due to the action on the heart itself or its contained ganglia.

Experiment 6.—Cat, etherized; pneumogastric of one side laid bare and a thread passed under it.

Time.	Pulse.	Pressure.
4-35- 0 P.M.	49	124
4-35-30	49	144
4-35-45, 8 drops of oil of wintergreen injected through the jugular.		
4-36- 0	54	124
4-36-15	53	90
4-36-30	46	54
4-36-45	43	50
4-37- 0	43	46
4-37-15	37	42
4-37-30	40	38
4-37-45	40	36
4-38- 0	40	36
4-38-15	42	36
4-43- 0	44	36
4-45- 0, pneumogastric irritated 11 seconds, Du Bois coil at 6 centimetres.		
4-45-15	30	50
4-45-45	33	60

In the above experiment it is readily seen that the pneumogastric is not paralyzed by the oil of wintergreen.

Experiment 7.—Cat, etherized; the pneumogastrics, depressors, and sympathetics in the neck divided, and the spinal cord is divided between occiput and atlas; artificial respiration kept up.

Time.	Pulse.	Pressure.
4- 1- 0 P.M.	53	120
4- 1-15, 8 drops of the oil of wintergreen injected through the jugular.		
4- 1-30	48	80
4- 1-45	50	72
4- 2- 0	47	50
4- 2-30	50	84
4- 2-45	53	96
4- 3- 0	64	104
4- 7-15	44	92
4- 7-30	44	90
4-10- 0	35	88
4-10-15	35	88
4-10-30, 8 drops of the oil of wintergreen injected through the jugular.		
4-14- 0	40	67
4-14-15	38	50
4-14-30	38	48
4-14-45	38	50

Division of the cord, thus removing the influence of the main vaso-motor centre, does not prevent the depression in arterial tension caused by the oil. The cause of the fall of pressure must consequently be found either in the heart itself or the peripheral vaso-motor system.

Respiration.—The effect of the oil of wintergreen was studied by means of Marey's polygraph. The oil of wintergreen was injected through the jugular.

Experiment 8.—Cat.

Time.	Respirations in 15 seconds.
2- 0- 0 P.M.	16
2- 0-15, 8 drops of oil injected by jugular	19
2- 0-30	19
2- 0-45	19
2- 1- 0	19
2- 1-15	16
2- 1-30	40
2- 1-45	25
2- 2- 0	20
2- 2-15	20
2- 2-30	19
2- 2-45	20
2- 3- 0	20
2- 3-15	20
2- 3-30	17
2- 3-45	13
2- 4- 0	12
2- 4-15	14
2- 4-30	14
2- 9- 0	20
2- 9-15	19
2- 9-30	19
2- 9-45, 16 drops of oil injected into jugular	26
2-10- 0	29
2-10-15	17
2-10-30	6
2-10-45	3

The oil of wintergreen increases the respiratory movement, as is seen by the above experiment. With large doses this increase is soon succeeded by a fall.

The action of the oil of wintergreen, as deduced from the preceding experiments, is as follows:

First.—It abolishes voluntary and reflex action by an influence on the cerebro-spinal axis, and not through paralysis of the motor nerves.

Second.—It produces complete want of feeling, not through an action on the peripheral nervous system, but by paralyzing the central nervous system.

Third.—Small doses accelerate the pulse: with large doses the pulse is immediately and permanently depressed. The blood-pressure, with small doses, is first depressed and then increased. With large doses it is immediately and permanently depressed. The depression of the pulse occurs after the preliminary use of atropine: hence the cause of the depression must be in the heart itself.

Fourth.—It does not paralyze the cardio-inhibitory apparatus.

Fifth.—The fall of pressure is not due to any influence on the main vaso-motor centre, as it occurs after section of the spinal cord.

Sixth.—Oil of wintergreen increases the respiration: with large doses this increase is soon followed by a fall.

OIL OF BIRCH.

Experiment 1.—Frog, received 16 drops of the oil of birch subcutaneously at 1–30 P.M.; at 1–37 P.M. there is loss of sensibility; voluntary movement persists; application of sulphuric acid is without effect; 1–44 P.M., complete loss of both voluntary and reflex action; 1–50 P.M., heart-beats, 60 per minute.

Experiment 2.—Frog, received 16 drops of oil of birch at 1–57 P.M.; 1–59 P.M., weakness in the anterior extremities; 2–3 P.M., loss of power in posterior extremities; 2–7 P.M., considerable loss of sensibility; 2–17 P.M., received 16 drops of oil of birch; 2–25 P.M., complete loss of voluntary and reflex movement; heart-beats, 60 per minute.

Experiment 3.—Frog, at 2–12 P.M. received 16 drops of oil of birch; left thigh ligated, leaving only the sciatic nerve free; 2–19 P.M., great loss of sensibility in both hind limbs; partial loss of voluntary movement and reflex movement; motor nerves irritable at 111 millimetres.

Experiment 4.—Frog, received 16 drops of oil of birch at 3–10 P.M.; 3–14 P.M., weakness of the anterior extremities, followed by weakness of the posterior extremities; 3–20 P.M., hardly able to move or hop; 3–40 P.M., reflex action lost, motor nerves irritable at 530 millimetres Du Bois-Reymond induction coil.

Experiment 5.—Frog, received at 3–30 P.M. 32 drops of oil of birch; at 3–54 P.M., frog is dead; motor nerves irritable at 620 millimetres.

Circulation. Experiment 1.—Cat, etherized; jugular and carotid laid bare.

Time.	Pulse.	Pressure.
4– 2– 0 P.M	50	170
4– 2–15, 8 drops of oil of birch by jugular.		
4– 2–15	47	162
4– 2–30	62	120
4– 2–45	61	128
4– 3– 0	56	140
4– 3–15	56	110
4– 3–30	58	132
4– 3–45	60	134
4– 4– 0	59	134
4– 4–15	55	148
4– 4–30	52	142
4– 4–45	52	148
4– 5– 0	52	156
4– 5–15	51	156
4– 5–30	53	156
4– 7–45	54	170
16 drops of oil of birch by jugular.		
4– 8–05	43	80
4– 8–15	45	50
4– 8–30	40	30
4– 8–40	...	22

Experiment 2.—Cat, etherized; jugular and carotid laid bare.

Time.	Pulse.	Pressure.
5–10– 0 P.M	47	170
5–10–30	47	170
8 drops of oil of birch by jugular.		
5–10–45	44	140
5–11– 0	46	110
5–11–15	46	60
5–13–30	41	100
5–14– 0	41	118
5–19– 0	41	122
5–19–15	43	160
5–24– 0	51	160
5–24– 0, 8 drops of oil of birch by jugular.		
5–24–15	46	100
5–24–30	51	54
5–24–45	50	40
5–25– 0	...	12

These experiments show that the oil of birch in its main physiological action does not show any important difference from that exerted by the oil of wintergreen.

Through the kindness of Dr. Ott, I am enabled to report the following brief notes of a case of poisoning by the oil of birch:

Mr. P., about 30 years of age, by mistake swallowed a half-pint of the oil of birch. Afterwards he walked about the town and transacted some business. He then took the train from Hazleton, Pa., to his home at Easton, Pa. On the train he was sick, and vomited several times. On his arrival at Easton, at 8 P.M., he was able to take the omnibus to his home, and presented the appearance of a man who was drunk. When seen at 9 P.M., he seemed in a drunken semi-stupor, bathed in perspiration, which had the odor of birch oil. When asked how much he had taken, he replied, "a few spoonfuls." He soon vomited, his face was flushed, his pulse about 90, respiration slightly depressed, no diarrhœa. He was given medicines to neutralize the oil, and also purgatives, which did not act. He vomited at intervals, but gradually it ceased, and he slowly passed into a state from which he could not be roused; his hearing was greatly blunted. During the night his pulse remained below 120, and by 9 A.M., the time of his death, it was very feeble and rapid; the breathing at the same time was about 40 in the minute.

ON NUTRITIVE DRESSING OF LARGE GRANULATING SURFACES.

By William Barton Hopkins, M.D.*

MARTIN A., æt. 26, a man of vigorous health and temperate habits, a brakeman by occupation, was brought to the Episcopal Hospital November 23, 1884. While coupling freight-cars his right elbow had been caught between the buffers, which nipped the limb and squeezed the forearm and elbow through a long tear in the integument, as a grape is forced by pressure through a rent in its skin. There was no bone or joint involved in the injury, and the deep fascia had also, to all appearances, escaped, except at one or two points; one, notably, just above the elbow, where a deep wound in the muscles extended down close to the brachial artery. Although no tissue had been lost, the greater part of the integument of the forearm and elbow had been stripped off, and lay curled up upon the anterior aspect of the limb. After being carefully washed with carbolated water, the wound, which extended from the lower part of the forearm to a point about four inches above the elbow, was loosely approximated, and dressed with carbolized gauze, dusted with iodoform. Two days later, owing to the high grade of inflammation which followed, this dressing was discontinued, and irrigation with carbolated water (one part to forty) used instead, and aconite was given internally. General sloughing of the entire flap of integument, and also of the muscles of the arm and forearm, followed. The elbow-joint narrowly escaped involvement, its whole contour becoming plainly visible, covered only by capsular ligament, which latter, however, fortunately remained intact. Owing to the perfect drainage which could be obtained, and free irrigation, which was persistently continued for two weeks, the great mass of sloughing, gangrenous tissue remained entirely free from odor, and, notwithstanding the patient grew exceedingly weak and became rapidly emaciated, his temperature seldom exceeded 100°, and he showed no symptoms of sepsis. At the end of three weeks the sloughs had mostly come away, and healthy granulations began to fill up the depressions and even off the surface of the large ulcer remaining. Five weeks after the accident improvement had come to a stand-still. The excessive drain from a suppurating surface, which at this time extended over an area of one hundred and five square inches, began to tax too severely his already enfeebled nutritive powers. He had complete anorexia, became nervous and irritable, had night-sweats, and his temperature became elevated, reaching 102° and 102½°. He had beginning hectic. Cicatrization had been going on for some time, but was feeble and tardy; while the discharge from the ulcer was free and comparatively healthy.

Assuming that a granulating surface, if sufficiently large, might be made use of with benefit as a medium for the administration of nutritive material, and that certain such materials could be applied to it which would not interfere with the processes of cicatrization, it was determined to employ for this purpose an emulsion of cod-liver oil, to which was added five grains each of pepsin and pancreatin to the ounce. The ulcer was accordingly dressed once a day with lint soaked in this preparation. A very decided change was soon observed to take place in both the general and local conditions, which I think could be fairly attributed to the change in the dressing, as care was taken not to alter his general treatment while the experiment was being made, and as the dressings which had been previously used were

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negative so far as their constitutional effects were concerned. His appetite began rapidly to improve. Food was taken in much larger quantities, was eaten with relish, and was properly digested.

The effects upon the ulcer were clearly secondary to those upon the general condition, as no changes were noticed in it until after marked improvement in the latter had occurred. Then it began to cicatrize with rather remarkable rapidity, in fourteen days having become reduced in area to seventy-seven square inches. The patient's face had lost its sunken, drawn expression, and he was now able for the first time to be out of bed. A number of skin-grafts were applied at this time, and the dressing therefore discontinued, lest it should interfere with the process. Ten days later, several of the grafts having been found to have taken, the nutritive dressing was reapplied, and continued for two weeks longer. The indications for its use, however, seemed to have ceased, and no particular effect was noticed, except that healing progressed favorably with it, and that it was otherwise unobjectionable. The ulcer was afterwards strapped until the patient was transferred to the out-department, March 17, 1885, about four months after the accident. Three small ulcers remained, the dimensions of which were, respectively, about two by two and a half inches, one by one and a half, and one by one. Owing to loss of structure and cicatricial contraction, there was little movement at the elbow, but the hand was quite useful.

Further tests of this plan of treatment are necessary in order to properly estimate what value it may have as a therapeutic means in combating suppurative exhaustion after extensive loss of cutaneous tissue from other causes, as burns and scalds, as well as from lacerations. Should such tests corroborate the evidence adduced in this case, the method will probably be found most frequently applicable after burns, as they so often destroy life solely from inability of the digestive system to supply sufficient nutriment to compensate for the inordinate waste incident to prolonged excessive suppuration.

VALOIDS.

By F. E. Stewart, M.D., Philadelphia.

MY attention has been called to a new class of pharmaceutical preparations named valoids by a short article in a recent number of the *London Lancet* on "*Valoid*" *of Coca*, which is quoted on page 207 of the March number of the Therapeutic Gazette. Not calling to mind a similar title in the established pharmacopœias as applied to chemical or pharmaceutical preparations, I have taken upon myself an investigation of the source of this new claimant to official recognition.

By reference to the advertising columns of the *British Medical Journal* I find an explanation of the word "Valoid." A "valoid," it seems, is a preparation which "contains (or ought to contain) in each pound the full medicinal value of one pound of the drug represented, inclusive of all alkaloids, resinoids, and other active principles." Otherwise they are described somewhat ambiguously as "Equivalent fluid or liquid extracts."

Practically, then, the new preparation is nothing but a *fluid extract*, and yet the terms in which it is described imply that it is something hitherto undreamed of.

Now I hold that it is of the utmost importance to medical science that pharmaceutical preparations shall have the world over the same composition and the same nomenclature, and I cannot help viewing with apprehension the growing tendency, on the part of the medical profession and press, to ignore this fact. If we are to have as many names for fluid extracts, tinctures, and other preparations of the pharmacopœia as there are manufacturing houses, and each house is to have the privilege of altering them to suit a whim or fancy, on what are we to depend for uniformity? And how are we to know what effects to expect from our prescriptions?

Further investigation of this new class of pharmaceuticals develops the fact that the name "Valoid" is copyrighted. I have said a good deal in these columns on this subject of copyrighted names, but the fact that the evil grows in spite of oft-repeated warning is my excuse for calling to it the attention of the profession again.

The proprietary medicine system is one of secrecy and monopoly. It seeks to control the materia medica by securing to manufacturing houses the exclusive use of the names of pharmaceutical preparations, and by concealing the method by which they are manufactured to prevent competition. I object to this for several good reasons:

First.—It is contrary to beneficence and professional liberality for the medical profession to endorse any scheme whereby a manufacturing house is enabled to obtain an exclusive monopoly in the sale of an article intended

for the relief of human suffering. It appears to me that the *London Lancet* has not only violated the ethics binding the profession to serve the cause of suffering humanity by permitting such a use of its pages, but allowed itself to become a cat's-paw in the hands of a wily and designing manufacturing house to rake chestnuts out of the fire.

Second.—The proprietary system hinders original investigation and prevents the free diffusion of knowledge. What truly scientific man would permit his name to be used by a manufacturing house for the purpose of creating a demand for an article over which such house had an exclusive control? And yet the profession should not take the florid statements of advertisers for granted. There seems no other way open for the profession except to demand that all proprietaryship should be removed, and all medicinal preparations thrown open to investigation, and in case of refusal to so just a demand, draw the line against them entirely.

Third.—The exclusive control of a medicinal preparation permits manufacturers to create a demand by exaggerated statements far beyond the true value thereof, thereby interfering with the use of better-known remedies, to the detriment of public interests. While we encourage original investigation and welcome new discoveries, let us not be misled by the false glitter of fool's gold.

Fourth.—The proprietary trade are attempting to establish a system of perpetual patent. This is contrary to the policy of the government of every civilized nation on the globe, and its success would defeat the very end for which the patent law was devised. The patent grants to the inventor the exclusive use of his invention for a limited time in exchange for the publication of full knowledge thereof, whereby the public may manufacture the invention when the patent expires. This stimulates inventors to invert, protects the investment of capital in the working of inventions until such investments become remunerative ones, and promotes progress in science and the useful arts by securing the publication of knowledge and its free diffusion when the limited control of the patent has expired. The proprietary system, with its ownership of names, permits and fosters unlimited and perpetual monopolies, and hinders the diffusion of knowledge. It is apparent that the ownership of the name of an article gives the manufacturer a great advantage in its sale. A competitor, to successfully compete therewith, must spend nearly as much money in creating a demand for the same thing under a new name as first spent by the original introducer, and the new name becomes a burden to medical literature.

Fifth.—Fancy the result to scientific nomenclature if proprietary names are admitted to medical literature. The nomenclature of chemical and pharmaceutical preparations is dependent upon the use of terminations, each having a definite meaning. These terminations have been used by the proprietary trade utterly regardless of this fact, and the admission of names of this sort into medical literature would result in confusion worse confounded.

Sixth.—The free use in prescriptions of a class of preparations the art of manufacturing of which is secret is to be strongly condemned. If used, the results of their employment must be reported in medical literature, or therapeutics will suffer in consequence; and therapeutics must finally suffer in the long run in the latter case, for the fate of secret pharmacy can only be eventually that of the lost arts.

Seventh.—The idea of admitting proprietary names into medical literature, and thereby granting whole sections of medical text-books and the pharmacopœia to the exclusive use of individual manufacturing houses, is too absurd to be considered for a moment.

This matter of proprietary medicines is the "patent" medicine system in disguise,—a very dangerous wolf in sheep's clothing,—and its rapid growth can only cast a lasting shame on the medical profession and medical press of the latter part of the nineteenth century. The use of "Valoids" and all other proprietary articles should be at once discarded, and the manufacturers of such compounds be delegated to the ranks of the nostrum horde, where they properly belong.

CASE OF OPIUM-POISONING TREATED WITH ATROPINE.

By F. M. Brundage, M.D., Conyngham, Pa.

J. S., aged 35, travelling salesman, American, strong and muscular, had been on a debauch for three days previous to March 5, 1885. Between 7.30 and 8 A.M. of this date he took 7 drachms of tincture of opium, with suicidal intentions. I saw him three hours afterwards, when he was entirely unconscious; hands, neck, nose, and ears deeply

cyanosed; muscles entirely relaxed; swallowing impossible; pulse 30; respiration 2 per minute; pupils contracted to the size of a pin's head. I administered ipecac, with a view to cause vomiting, and compelled him to take passive exercise, flagellated and manipulated him. Under this treatment his respirations increased to 4 per minute. At half-past eleven the pulse was 30, the respiration 2 per minute. There were no signs of convulsions. At this time I gave him ½ grain sulphate of atropine hypodermically, over the stomach, in 30 drops of water. The artificial exercise was continued, and in twenty minutes his respirations became more frequent and somewhat spasmodic in character. At half-past twelve, after being well shaken, he exclaimed, "For God's sake, let me sleep!" He now made an effort to drink. Walking and flagellation were continued. At 5.30 P.M. the surface of the body became very cold and cyanotic, when I gave him ¼ grain of atropine, subcutaneously. The pulse now became very rapid and the heart's action irregular. About half an hour after getting the last dose of atropine he began to swallow some strong coffee. There was no change in the pupils. At 7 P.M. the pulse was more regular, and at 10.30 P.M. he vomited some coffee, and signs of consciousness appeared on violent manipulation. At 11.30 P.M. the pupils were more dilated, and he began to complain of cramps in the lower extremities. In half an hour afterwards complete consciousness returned. He made unsuccessful efforts to go to sleep again, and begged for something to make him sleep. He was entirely rational next morning.

UNTOWARD EFFECTS PRODUCED BY DRUGS FROM CHANGES DUE TO AGE AND EXPOSURE.

By Joseph Schmidt, M.D., Philadelphia.

IT would be a study of considerable interest and value to ascertain the precise physical and chemical alterations in the most ordinarily used medicines which result from age and exposure. These changes, though undoubtedly occurring in all medicinal substances, are especially appreciable in the so-called solutions or tinctures, in which the evaporation of the vehicle forms a ready and constant source of diverse changes. There is little doubt but that some of the inordinate toxic phenomena occasionally noted as following the exhibition of perfectly normal doses—usually very conveniently referred to idiosyncrasy—are actually caused by either new therapeutic factors resulting from chemical decomposition, or an undue concentration of the drug caused by evaporation of its liquid menstruum. The last few ounces of tincture of opium kept in a pint bottle in a small drug-store will surely have a different strength and physiological action than the first portions taken from the same bottle. The same is obviously true of all tinctures and solutions. The alterations produced by the sunlight on certain drugs, such as the nitrate of silver, or those resulting from the absorption of carbonic acid from the atmosphere, as in the case of lime-water, and finally those due to efflorescence and deliquescence, are too well understood to require anything but a passing consideration.

Our interest naturally concentrates in the changes occurring in drugs of powerful therapeutic activity, chiefly the narcotics and anæsthetics.

Hager, the well-known German pharmacologist, reported a year or so ago a striking illustration of a dangerous change occurring in a drug. In a conversation with a merchant, the latter stated that he suffered from periodically returning neuralgic pains, which he could readily alleviate, however, by a hypodermic injection of a 3 per cent. solution of hydrochlorate of morphine. The last injection, which he made in his arm, made him so sick that he was compelled to remain in bed for three days; his stomach especially seemed to have been affected, for he experienced an unceasing desire to vomit, without, however, being able to execute the act. Hager, examining subsequently the morphine solution, found the liquid to be limpid and almost colorless, having but a faint yellowish tint. The bottom of the vessel was covered by a fine precipitate, which could not be removed by shaking. The solution had been made eleven months, but had been always kept in the dark in a tightly-closed bottle. As former injections had always the desired result, the peculiar effects of the last application were, in Hager's opinion, very probably due to the formation of apomorphine. Testing the solution for apomorphine with caustic soda (1 drachm–20 drops), Hager found his supposition verified. Other test-experiments have established the fact with certainty that solutions of hydrochlorate of morphine show within four to six weeks traces of apomorphine. Hence it is not safe to employ solutions longer than about a month, dating from the time of their preparation. In fact,

it is probably preferable in all hypodermic injections to prepare the solution only when required.

To test a solution of hydrochlorate of morphine for apomorphine, a colorless solution of caustic soda is added to a clear, colorless, watery solution of the morphine salt. The appearance of a yellowish or brownish tint at once indicates the presence of apomorphine. Mixed with an equal volume of acetic acid and a few drops of a solution of nitrate of silver, the solution will show the presence of apomorphine by a faint reduction of the silver, the characteristic darkening appearing within two hours.

Chloroform is another drug which has long been suspected of undergoing occasional decomposition and forming new chemical products. It is certain that not all of its occasionally observed untoward effects can be attributed to heart-disease or idiosyncrasy.

As early as 1867 German observers held that perfectly pure chloroform underwent decomposition under the influences of air and light, while Personne in 1877 denied this, assuming that the decomposition originated from the presence of chloral, through which spontaneous disintegration into chloride of carbonyl ($C_2O_2Cl_2$) resulted.

Regnauld asserted that pure chloroform, protected from the sunlight at its preparation, when exposed to the light decomposed within two days in July, and five days in December, the products of decomposition being chlorine, chloride of carbonyl, and muriatic acid. When protected from light, but exposed to air, it can be kept intact for fifteen months. Chloral seems to have no share in this decomposition. Ethylic alcohol, however, added in small quantity (1–1000) to chloroform, will insure the preservation of the latter. The sulphuric and acetic ethers have the same influence, which, to a limited extent, is also shared by amylic and methylic alcohols.

Solutions of salicylate of sodium, made with ordinary water, tend also rapidly to decompose, as shown by the appearance of a brown or black color in a couple of hours. Markovich has lately published the following formula for a successful preservation of these solutions:

Acid. salicyl., ʒvii;
Sodii hydrocarb., ʒiiiss;
Aq. dest. puriss., fʒxii.

The acid and water are mixed first, and the soda is gradually added; when the liberation of gas ceases, the mixture is warmed and filtered, and the water finally added.

It is not at all improbable that the grave symptoms reported in some instances after the ingestion of salicylate of sodium, as described at length in the February number of the THERAPEUTIC GAZETTE, are also referable to certain not yet fully understood changes of the salt.

We venture even to generalize this conclusion, and to assert that possibly, in the majority of cases, where normal doses of ordinary medicines produce unexpected and inordinate symptoms, a careful examination of the drug would establish the presence of certain changes in it.

Cocaine furnishes another illustration for our assertion. The reason that this drug, in spite of its unrivalled analgesic and reflex inhibitory capacities, remained so long in obscurity is to be found in the indifferent results which the early German observers gained with it. The literature of the drug proves that such indifferent (in some instances even undesirable) effects from its use have been recorded every now and then. The plea of idiosyncrasy, of course, could again be advanced; but its influence, if it exists at all, should be rated at a minimum. Indeed, we regard it as preferable that the term idiosyncrasy, which in therapeutics practically means little and explains less, should be stamped out of medical phraseology. A thorough investigation of the drugs will, in the majority of instances, reveal certain changes perfectly sufficient to account for an undue therapeutic effect. In cocaine the occurrence of essential changes under certain conditions is clearly demonstrable, though their precise nature is not yet accurately determined.

Henry Maclagan was the first to call attention to the singular fact that, during the preparation of this alkaloid, benzoic acid and other compounds will eventually be formed. Among the latter propylamine is likely to be included. If a small quantity of cocaine is dissolved in alcohol, and concentrated solutions of either caustic soda or potash are added, the characteristic odor of benzoic acid is distinctly perceptible. The rapid disappearance of this odor suggests the formation of an alkaline benzoate. If a little water now is added and the alcohol evaporated by moderate heat, the addition of an acid in excess (provided not too great a quantity of water was added) produces a loose, pearly precipitate, possessing the peculiar odor and chemical properties of benzoic acid. The mother-liquid tested with the red iodide of mercury indicates no further traces of an alkaloid.

This fact probably explains the failure of many attempts at extracting the alkaloid by ether in the presence of soda and potash, which always contain some water.

Lossen and Wöhler also found that cocaine, on being heated with the chloride of hydrogen, was decomposed into benzoic acid and certain other compounds.

Having thus pointed out the possible occurrence of chemical changes in cocaine under certain conditions, it seems safe to assert that the occasionally recorded utter failure of the drug finds, as in other instances, a very plausible explanation in the stated chemical metamorphosis.

In conclusion of these remarks, I will briefly allude to several inordinate effects of other medicines, which, in my estimation, refer to chemical decomposition of the drug rather than to idiosyncrasy of the patient, as hitherto usually believed.

Trousseau speaks of a young woman who was delirious for a whole day after taking 20 grains of sulphate of quinine. In another case, that of a man, 46 grains rendered the patient blind, deaf, and delirious, and so giddy as to be unable to walk, besides causing continuous vomiting.

The cases of violent gastro-enteritis occasionally produced by ordinary doses of subnitrate of bismuth are usually ascribed to the presence of arsenic; but no preparation of subnitrate of bismuth could contain arsenic enough to account for the symptoms in question, one-sixth of one per cent. being the largest proportion of arsenic ever found in any specimen.

Orfila mentions an instance in which a man died immediately from the effects of a moderately large dose of brandy. Rösch reports several other cases in which even small quantities led to a fatal issue (Wharton and Stillé's Med. Jurisprudence, § 734). Alarming toxic symptoms have been observed after taking a single drop of creasote, while in other instances 80 drops occasioned no evil consequences.

The numerous fatal cases following the exhibition of an anæsthetic, even if no cardiac lesions are present, can likewise, as intimated above, be referred to chemical decomposition and the generation of foreign toxic principles.

In the case of bromide of ethyl, for which an almost ideal union of therapeutic energy and general harmlessness was claimed, a few lethal issues succeeded in stigmatizing this certainly powerful anæsthetic. I believe, however, that bromide of ethyl, if it can be procured pure and preserved from chemical decomposition, is an almost perfectly safe anæsthetic, excelling in this respect even ether and chloroform; and that a fatal termination of an anæsthesia induced by it is to be ascribed to the generation of foreign toxic principles resulting from chemical change, in all probability an excess of free bromine or bromide of carbon. The source of this danger, according to Dr. Harrel, is fortunately eliminated by mixing the commercial specimen with five per cent. of olive oil, and agitating it from time to time for twenty-four hours, and finally distilling it in a water-bath. The subject of this distillation will be absolutely pure ethyl bromide, an anæsthetic equally harmless as powerful.

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POTASSIUM IODIDE RASH SIMULATING VARIOLA.

In a report made to the Health-Office of the District of Columbia, for the year ending June 30, 1882, Dr. Llewellyn Eliot, of Washington, made a statement to the effect that many subjects are unable to take even the smallest quantity of potassium iodide without experiencing symptoms of an identical character to those of smallpox. This assertion was called in question at the time by many physicians of experience, and Dr. Eliot now reports the following case in its support: "On March 2, 1884, he was called to attend a recently-married woman, 19 years of age, suffering from hæmoptysis. This was controlled by gallic and aromatic sulphuric acids, and two days later, there being some pleuritic pains on the left side, a mixture was ordered containing 16 grains of iodide of potassium in an ounce of mucilage of gum acacia, of which a teaspoonful was to be taken every two hours. This was at one o'clock in the afternoon. At six she complained of pains in the lower jaw, and by midnight had the coryza, injected conjunctivæ, puffiness of the face, severe headache, aching of the body, especially in the back, soreness of the throat, and the appearance of red spots over the face. The iodide was stopped the next morning, and at nine o'clock that evening the pains had ceased, and the eruption was fading, and two days later had entirely disappeared. The symptoms of iodism followed the second dose, when but 4 grains had been taken."—*N. Y. Medical Record*, March 28, 1885.

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Leading Articles.

NOTES ON THE TREATMENT OF TYPHOID FEVER.

SECOND PAPER.

THE general principles which underlie the management of a case of typhoid fever after the disease has declared itself can be very briefly stated. In a previous article I have spoken as emphatically as I could upon the necessity of rest in the very early stages of the disease. Of course this necessity increases as the case progresses, and especially is it dangerous in the stage of convalescence to allow any laxity. I believe that a neglect of this is a very common cause of the slowness from recovery of the patient from typhoid fever. I have seen a patient in the sixth week, out of danger and progressing very favorably, get out of bed, perform a few trifling manual acts, and in two hours' time be desperately ill, with a temperature of 106° F.

In studying any disease therapeutically it is essential to have clear ideas as to what is desirable, and especially as to the natural history of the disease. In regard to the present affection, it is plain, in the first place, that it is impossible to abort an attack of typhoid fever; and, in the second place, that it is almost equally possible distinctly to shorten the course of the disease proper. We are therefore reduced to the study of the dangers which beset the patient, and the means which we have for avoiding these dangers. I know that in the last few years some very well qualified Philadelphia practitioners have published statistics to show the value of specific medication in typhoid fever, but the number of cases is absurdly small to base any conclusions on, and the results have not been any better, and I do not think as good, as from other methods. Moreover, really specific plans of treatment do not need to be bolstered up by statistics. Does any one appeal to statistics to show that quinine is an anti-periodic? The thing shows for itself. A remedy which kills a disease-germ stops the case plainly and beyond cavil. In my opinion, there is not the slightest reason for believing that there is any substance known to us which has any specific influence over typhoid fever, and the exhibition of iodine, mineral acids, and various other substances which have been proposed as curative of the disease is worse than folly, as these medicines are not rarely distinctly injurious; most of them are more or less irritant to the alimentary canal, and, even if no direct harm is done by them, the annoyance which they inflict upon the patient is often a serious disturbance, for it must be remembered that when consciousness is perfect in typhoid fever the weakness is usually such that trifles light as air may press most heavily upon the patient. In a case which occurred years ago, I believed I saved the life of a very talented medical man by simply stopping the treatment which was being inflicted upon him by one of our most eminent practitioners. The patient was being made a victim of the so-called Swedish method of treatment, whilst his enormously distended abdomen and perpetually recurring diarrhœa showed the abdominal irritation which was distinctly diminishing his chances. The more I have studied this disease the more convinced have I become that all medical treatment should be symptomatic, that unnecessary medication should be avoided, and that the two great objects of our efforts should be to prevent exhaustion and to avoid complications. It is to prevent exhaustion that we feed the patient to the utmost; that we use alcohol; that we keep down the temperature; that we check diarrhœa. It is to avoid complications that we earnestly treat the first pulmonic symptoms; that we arrange the feeding, and give certain remedies to

lessen as far as may be the abdominal ulceration.

The question of feeding is one of the most vital importance. It is not necessary at the present date to dwell at any length upon the necessity of the use of liquid food. But it perhaps will not be wasting space to call attention to the fact that it is the digested food which nourishes the patient, not simply the food which is put into the alimentary canal. It has seemed to me that more frequently typhoid fever patients are overfed in this country than underfed. Usually any such overfeeding results in the production of excessive tympany, more rarely in the causing of diarrhœa. So long as there is in any case no excessive tympany, and the stools have no bad odor and are not overfrequent, or the stomach nauseated, so long in any individual case is there little danger that the patient is overfed; but whenever the distention of the abdomen becomes serious, it is of vital importance that the physician study very carefully the question as to whether he is not overfeeding his patient.

The articles of food to be employed have steadily grown fewer and fewer as we have got more and more experience. Beef-essence, long believed to be invaluable, is now known to be a stimulant,—to be used freely in the lowest stages of the disease, not as a food, but as a stimulant, and with a clear recognition of the fact that its food value is even less than that of alcohol. During the proper course of the disease milk and an occasional raw egg must be our reliance. Of the milk the patient should take from three to five pints in the course of the twenty-four hours; of the eggs, one or two. A food at once nutritious and stimulant is an article I first learned to know in the German table-d'hôte as "*Suppe mit Ei.*" Beef-tea or beef-essence, as the case may demand, is taken from the fire boiling, poured into the dish, and while at a temperature of about 200° F. has stirred rapidly in it an egg. The smooth mixture which results is to many persons very palatable, and sometimes agrees better with the stomach than does milk. When this food is used freely, the quantity of milk given must be correspondingly reduced. The feeding should be, during the day, at intervals of not less than two hours, and during the night at intervals of three or four hours, it being always borne in mind, in regard to both the food and stimulants, that the most dangerous time for a very feeble patient is from three to five o'clock in the morning, and that a prolonged sleep without stimulants or food previous to this time may cause very serious collapse.

The nurse, five minutes before the appointed hour of giving food, should administer one-fourth of a glass of milk; at the hour, another fourth; ten minutes later, another fourth, and so on until the whole has been distributed over the course of twenty minutes; in all advanced serious cases of the fever the milk should not be drunk out of a tumbler, but either sucked up by means of a tube, or, better still, slowly poured into the mouth from the so-called sick-cups provided with a spout. At night, when it is important to arouse the patient as little as possible, this rule of broken administration of food should be departed from, and the whole draught be given at once and drunk slowly. In many cases it is well to add about half an ounce of lime-water to each tumbler of milk, as tending to lessen the firmness of its coagulation. Some practitioners add small amounts of arrow-root for the same purpose, but I am much afraid of the starchy articles of food in typhoid. Clinical experience with peptonized foods is not yet sufficient to warrant a positive opinion as to their value. I cannot see, however, that any harm can be done by peptonizing the milk, and if the patient do not object to the disagreeableness of such milk, it ought to be used; but the natural milk may be preferred if, as has been often the case in my experience, the peculiarly disagreeable taste that peptonized milk is almost certain to have (notwithstanding the assertions of those who manufacture the extractum pancreatis) cannot be overcome or is extremely repugnant to the palate of the patient. To most persons a much more palatable and probably almost equally digestive form of milk is the so-called koumiss or its substitutes. The genuine koumiss is, of course, made from mare's milk, but a so-called koumiss can be bought at the apothecary shops. This is, however, simply fermented cow's milk, and can be made at home very easily and at an entirely nominal expense. All that is necessary is to provide one or more bottles, according to the quantity to be used, such as are habitually employed for beer. Care must be exercised that these bottles are kept clean, and they should be washed out with soda-water each day, and well rinsed. In the evening one pint of milk, a tablespoonful of white sugar, and one-sixth of a Fleischmann's yeast-cake are to be put in each bottle (Fleischmann's yeast-cake is a solid yeast one and a quarter inch square and seven-sixteenths of an inch thick). The bottle is then set in a

warm place (temperature of about 80° F.), for from eight to twelve hours; it is then removed, well shaken, and put for a few moments where it will cool gradually; then placed on ice to check fermentation. If the cork has been properly secured, when opened the liquid foams out violently. The curd of the milk should be diffused in small flakes through it. The length of time the bottle is kept in the warmth decides the extent of the fermentation, and, consequently, whether the taste shall be sweet or sour. If a sour koumiss be desired, all that is necessary is to allow the fermentation to go on a few hours longer. I think that the koumiss ought to be prepared fresh every twenty-four hours.

Closely allied to the food question in typhoid fever is the use of alcohol. Authorities in this matter differ considerably, some of them putting off the exhibition of alcoholic liquors until late in the disorder. My own practice is to begin their use so soon as the typhoid fever declares itself. Properly employed at this time they can do no harm, and I am very confident that they aid in preventing exhaustion. It has seemed to me that there are two distinct methods of use, two objects to be obtained, in the use of alcoholic liquors in typhoid fever. Early in the disease it is not so much the general stimulation that is desired as the local effect of the liquor upon the gastro-intestinal tract. By means of this local action I believe we can secure the digestion of more food than without it. The alcohol should be, however, in very small doses; not more than a teaspoonful of brandy or whiskey should be given at a time, and it should always be administered with food. To the allowance of four ounces of milk may be put a fluidrachm of whiskey or brandy. In cases of sick stomach occurring in this as in other low fevers, a drink which is always grateful, very stimulant, and very nutritious, is made by mixing champagne with milk.

When the time comes for general stimulation with alcohol, the important question always is as to the amount of the liquor to be given. I believe that no fixed dose is to be set. In most cases five or six ounces of whiskey or brandy a day are sufficient; but, on the other hand, I have seen life apparently saved by the daily administration of over one pint. So long as there are no flushings of the face, no evidences of cerebral excitement, no angriness of the pulse, and especially no odor of the liquor upon the breath, the alcohol is not doing harm. It is sometimes wonderful what enormous doses will be swallowed without the faintest trace of odor upon the patient's breath, and any such odor should be the signal for the lessening of the diurnal dose of the stimulant.

The question as to the form in which the alcohol is to be administered is of less importance, in my experience, than it may seem at first sight to be. There does not appear to me to be any distinct and constant difference in the action of brandy and whiskey, of the same grade, except that brandy is more binding upon the bowels. The taste of the patient may be consulted in the matter with advantage. It is, of course, much easier to obtain a good quality of pure whiskey than brandy, and consequently I usually prefer the whiskey. In cases of delicate stomach, the use of wine-whey may sometimes be of advantage; but its employment has, I think, gone largely out of use, at least in this part of the world. In the crisis of the disease, as well as during convalescence, high-priced old sherries, madeiras, or wines of the same general character or grade, may be substituted for the distilled liquors, and they are often more grateful to the stomach, and may, perhaps, as Anstie insisted, be more stimulating to the nervous system, on account of the volatile ethereal principles which they contain.

ARBUTIN.

A VERY important method of avoiding the use of disagreeable medicines is by employing their active principles, the dose of such being usually so small that they can be given in capsules, sugar-coated pills, or some such form. A remedy of some value, whose active principle has long been known, but is not at present employed by the profession, is uva ursi. In this drug a crystalline principle was discovered in 1847 by a Mr. J. C. C. Hughes (*American Journal of Pharmacy*, 1847, p. 90), and from him received the name of *ursin*. In 1853, Kawalier gave to this substance the name of *Arbutin*, by which it is at present known. It occurs in long, acicular, colorless crystals, freely soluble in water, less so in alcohol and ether. By the action of sulphuric acid it is resolved into glucose and the substance known as *hydrochinone*.

Mr. Hughes affirms that in doses of one grain arbutin is a powerful diuretic. The importance of this claim for arbutin is enhanced by the fact that the principle is found in a number of our most common wood plants

belonging to the same family as the Arctostaphylos, and could be produced very cheaply if there were any large demand for it. Until recently, however, the discovery of Hughes has borne but little fruit. It is true that in 1858, Jablonowski, in his Dorpat inaugural thesis, published an account of the effects of the arbutin upon himself. He took in forty-eight hours 18 grammes of it without suffering any discomfort. The urine, as he first passed it, was of normal color, but on standing became greenish, and he believed that he obtained from it benzoic acid.

Schroff, in his *Lehrbuch der Pharmakologie*, states that in doses of two to seven grains the arbutin has no effect upon man. In 1877, M. von Mering (*Archiv f. d. gesammte Physiol.*, Bd. xiv. 1877, 276) ascertained that when the arbutin is given to rabbits, hydrochinone and methyl hydrochinone can be obtained from the urine. L. Lewin (*Virchow's Archiv*, 1883, Bd. 92) undertook anew an examination of the chemistry of the elimination of arbutin, and found that inside of the body the glucoside is broken up into sugar and hydrochinone. Steffen (*Untersuchungen über die Wirkungsweise*, etc., Wurzburg, 1883, 91) finds that when hydrochinone is given in small doses it produces a pale-greenish color in the urine, and after larger doses, a brownish-green color, especially if the amount of urine passed be small. In either case, the urine, upon standing, becomes very much darker. The interesting point in this connection is that this discoloration of the urine by arbutin and hydrochinone is similar to those which are the signal of danger in external carbolic acid poisoning. Baumann and Preusse have also shown that the discoloration of the carbolic acid urine is the result of formation in the body of hydrochinone out of carbolic acid.

The change of arbutin into hydrochinone probably occurs in the kidneys, because Dr. Brieger has shown that hydrochinone is poisonous, producing in man giddiness, ringing in the ears, lessening in the force and frequency of the pulse, etc., while, on the other hand, it seems well made out that arbutin has no toxic properties.

Dr. L. Lewin has also made experiments to determine whether the arbutin is or is not the active principle of uva ursi, and comes to the conclusion that whilst the tannin of uva ursi has some effect upon the bladder, it is the hydrochinone, the result of the splitting up of the uva ursi, which is the more important agent. His experiments, unfortunately, are not sufficient to establish his conclusion. This conclusion is, however, rendered highly probable by the proof furnished by Betz (*Memorabilien*), and especially by Forster (*Aerztl. Intelligenzblatt*, 1881), that hydrochinone is a powerful disinfectant and antiferment. It is affirmed that a one per cent. solution of the principle arrests putrefaction as well as the alcohol fermentation, while a half per cent. is sufficient to check a butyric fermentation.

In the *Wien. Med. Presse*, Bd. 25, 1884, p. 13, Dr. Heinrich Paschkis has added a practical study of the subject, making experiments upon cases of gonorrhœa and of cystitis, with results which do not carry out the assertions of L. Lewin. He comes to the conclusion that when the arbutin is given very freely, only a portion of it undergoes change into hydrochinone, whilst a second portion escapes, and believes that the positive good which he has achieved from uva ursi in cystitis is chiefly produced by the tannic acid which it contains, whilst the diuretic effect is largely the result of the volatile oil found in it. An important observation of Paschkis is that the dried extract of the uva ursi leaf is extremely efficient. Of this extract, the dry leaves yield about 25 per cent., which contains about 3½ per cent. of arbutin and 16 per cent. of tannic acid. There is one other contribution to our knowledge upon this subject worthy of being taken into consideration. It is that of Dr. Menche (*Centralblatt. für Klin. Med.*, 1883, p. 433). He has made experiments upon a few cases of dropsy, with the result of finding that four daily doses of three grains each of arbutin increased very decidedly the secretion of urine. He has also tried arbutin in the catarrh of the bladder of severe myelitis, as well as the other forms of cystitis, and asserts the very best results.

Our present evidence is certainly too incomplete to enable us to decide the exact value of arbutin in the treatment of disease of the genito-urinary organs, or as a diuretic in dropsy. It is sufficient, however, to demand further investigation of the subject, and enough to make us believe that a well-prepared solid extract of uva ursi would act more efficiently than the horrible decoctions and infusions which are at present in vogue. The dose of such an extract may be considered to be one-fourth that of the leaves. It could be readily given in pills of five or ten grains. If these were coated with gelatine or sugar, or enveloped in soft capsules, no offence would be given to the most delicate palate.

ALARMING CONSTITUTIONAL SYMPTOMS PRODUCED BY THE APPLICATION OF A BELLADONNA PLASTER.

A CASE related at the meeting of the Cincinnati Academy of Medicine, held March 17, by Dr. H. Wilfert, and reported in the *Cincinnati Lancet and Clinic*, April 4, 1885, of a man 40 years of age, in whom the application of a belladonna plaster to the back for lumbago produced serious constitutional symptoms, excited an interesting discussion, though it appears to us that the true explanation of the occurrence was overlooked. The facts of the case are, briefly, as follows:

Only a few hours after the application of the plaster Dr. Wilfert was sent for, and found the patient complaining of headache and very dry throat, with a sensation of choking, the respiration considerably increased, and the pupils largely dilated; he had great difficulty in swallowing, and said that water did not allay the thirst. The plaster, which was an unusually large one, was removed, and the surface was much reddened and excoriated, as the result of the friction which the patient had resorted to before applying the plaster. Two days later the patient was resting more comfortably, and complained only of dimness of vision, the pupils being still somewhat dilated. Though a few other cases have been reported in which the external application of belladonna produced poisonous effects, in the present case it seems to us perfectly clear that the poisonous effects are to be attributed to what Dr. Wilfert describes as the excoriated condition of the skin. Such a condition must, of course, facilitate absorption, and though it is possible that in the present case there was also some unusual susceptibility to the drug, that susceptibility is no more proved than it would be by the occurrence of belladonna-poisoning after smearing an open wound with belladonna ointment.

THE CUMULATIVE ACTION OF DIGITALIS AND HELLEBORE.

THE peculiar so-called cumulative action of digitalis has long attracted the attention of practitioners. Numerous observations by the sick-bed have taught that after the administration of small doses, continued for some time, occasionally violent toxic symptoms appear,—symptoms which ordinarily would be attributed to the administration of a single large dose. These toxic symptoms, which, as explained by the name, are attributed to an accumulation of the active principles of digitalis in the organism, may be of two kinds. In the first place, the main action seems to be exerted on the pulse, which, after repeated small doses, becomes suddenly much slower than would be expected from the dose given, or becomes irregular, small, and even sometimes greatly increased. On the other hand, the symptoms may be most marked on the side of the central nervous system; dizziness, nausea, vomiting, and convulsions may all appear, and sometimes even lead to a fatal termination. But, although these extraordinary symptoms have been almost generally attributed to the accumulation of the drug in the system, no satisfactory explanation of the locality and manner of this accumulation has ever been given. It has been supposed that the drug remains partially undissolved in contact with the intestinal mucous membrane, and then suddenly undergoes solution and absorption: the cumulative action of digitalis would thus be attributable to its insolubility and difficulty of absorption. Almost all that we know about the cumulative action of digitalis has been obtained from observations at the sick-bed, and the question arises, how far the condition of the patient, as regards activity of the circulation, and, therefore, of absorption, in such pathological cases, is concerned in the causation of these characteristic phenomena;—a question which, of course, can only be settled by observations made on healthy men and animals. This phase of the question has been the subject of numerous experimental studies, which have seemed to prove that even in healthy individuals the phenomenon of accumulation may appear; though, on the other hand, instead of symptoms of cumulative action following prolonged administration of digitalis, actual accommodation of the organism to this drug seems to be indisputable. Digitalis, therefore, if this be true, may be included among those substances to which the animal organism may become insusceptible, so that large doses, which in a normal organism would produce violent toxic symptoms, may in others be taken with impunity.

It is self-evident that observations made either on a healthy man or at the sick-bed cannot clear up the cause of this cumulative action of digitalis, for as soon as the phenomenon of toxic action appears, the administration is, of course, interrupted; and it is remarkable that until recently no attempt has been made to study this paradoxical phenom-

ena in animals. This gap in our knowledge of the action of such an important drug as digitalis has been largely filled by the valuable paper published by Dr. W. Van der Heide, in the *Archiv. für Exper. Pathologie und Pharmakologie*, Feb. 19, 1885. Dr. Van der Heide's experiments were made with digitaline, and led also to the conclusion, in which he confirms Marme's results, that helleboreine is practically identical, in its physiological peculiarities, with digitalis, and that it also possesses the same peculiar cumulative action.

Before proceeding to the discussion of the author's experiments on digitaline and helleboreine, we must call attention to the importance of his results as regards the action of these drugs on the temperature. He found that in every instance where these articles were injected subcutaneously, there followed a marked elevation of the temperature, while, when administered internally or by the rectum, no such elevation appeared. In the case of digitalis, this increase of temperature in greater part appears to be due to its local irritative action: in nearly every case its hypodermic use was followed by symptoms of irritation, which, in some cases, passed on to the formation of abscesses. Similar results have been noticed in man, but have not been correctly explained, since, although direct injection into the blood may produce slight change of temperature through direct action on the central nervous system, the great part of the cause of this increase of the temperature is to be found in inflammation of the subcutaneous cellular tissue. Similar results follow the subcutaneous injection of helleboreine, and in this case also the increase of temperature is to be attributed to the irritant action of this drug, and the volume of the fluid injected. It would seem, therefore, that neither of these drugs is suited for hypodermic use in the treatment of disease.

Passing now to the author's studies as to the cumulative action of these two drugs, we find that in all cases in which digitaline and helleboreine are given in small or large doses, either subcutaneously or by the stomach, the following secondary appearances, lasting for as long as four weeks after the cessation of the administration of the drug, were observed: First, the pulse was in all cases slowed, only returning to normal after numerous fluctuations; second, irregularity of the pulse, which was more marked as an after-effect in those cases in which irregularity was a prominent symptom during the administration of the drug. When uniform doses were given for some time, in no case did the most powerful action on the heart occur after the first dose, and when the dose was gradually increased, the action on the heart became intensified, but without definite relationship to the increase of the dose; so that when the doses are rapidly increased, the effect is not as marked as would be expected from the size of the dose. From this it is clear that the action of digitaline and helleboreine on the heart is not a true cumulative one, but rather the heart becomes accustomed to the drug.

The remarkable fact was further noticed by the author that when the administration of the drug is commenced with small doses, and these gradually increased, nervous disturbances are in nearly all cases observed, usually after the third or fourth dose has been administered. These symptoms last only one or two days, and then disappear, even if the drug is given continuously in the same doses, thus showing that the nervous system can also accommodate itself to the action of this drug. So, although this action is at first a true cumulative one, the nervous system rapidly becomes accustomed to the drug, even in a more marked degree than is the case with the circulation. We see, therefore, that while many facts determined by the author point to a cumulative action of these drugs, symptoms pointing to an accommodation of the organism are quite as marked. Of the first of these phenomena may be mentioned the facts that very small doses given at uniform intervals may produce death. Second, the occurrence of after-action on the circulation. Third, the fact that the most energetic action on the heart only occurs after several doses have been given. Fourth, the occurrence of symptoms of poisoning after prolonged administration of a dose which in normal animals is completely innocuous.

On the other hand, the symptoms which point to an accommodation of the organism to digitaline and helleboreine, in contradiction to cumulative action, are, first, the complete disappearance of a series of toxic phenomena, even during continued administration of the drug in the original doses; and, second, the change which is always observed in intensity of the action on the heart of a dose which at first produced powerful disturbance of the circulation.

As regards the explanation of these so-called cumulative phenomena, the simplest explanation, and the one usually given, is that the doses given at different times accumulate in the organism, and that then the sum total of

the single doses at one time produces its action; but when we come to explain how this accumulation can occur, we are at once met with difficulties. As we have already indicated, it has been attempted to explain these facts by the slow absorption of this drug; but Dr. Van der Heide's experiments have shown that the mode and locality of administration is entirely without effect in modifying their effects. Accumulation occurs whether the drug be given subcutaneously, by the mouth, or even directly into the blood; while, moreover, helleboreine, which also shows cumulative action, is an extremely soluble substance. There is still one possibility which should be considered, and that is, that accumulation may occur through diminished elimination; but no evidence which would justify this assumption has ever been obtained. Dr. Van der Heide believes that the cumulative action of digitaline and helleboreine is not due to any simple physical property of these substances, but to the peculiarity of the chemical processes which occur under the influence of these drugs in the organs showing the result of their action, by which certain peculiar combinations are slowly formed, and again, slowly decomposed, and he details his experiments made in the search for the point of this accumulation. Although his results in this connection cannot be claimed to be conclusive, they point to a most promising line for future research.

The following therapeutic application of these facts may be drawn from the results of the above investigations. It is better to give this drug at intervals of twenty-four hours, and in small doses, rather than with smaller intervals and larger doses. Even when symptoms of cumulative action appear after prolonged use of digitaline or helleboreine, there is no great danger of a fatal or even serious result; for in all the author's experiments the toxic phenomena disappeared even during the continuation of the use of the drug. When, however, after the first day of the use of these drugs, no action appears on the heart, great care must be observed in the continuance of their use, since a further administration of the drug can produce the most dangerous symptoms or even death; thus in the author's experiments, in which death followed a small dose, no action appeared on the heart until the very time and occurrence of death.

As regards the therapeutic value of helleboreine little is known, though that little seems to prove an absence of all useful properties in the treatment of heart-diseases. Helleborus niger has been stated to contain two alkaloids,—helleborine and helleboreine. The latter, which was used in Dr. Van der Heide's experiments, is soluble in water, and was shown by Husemann to be a local irritant, with a special action on the intestine and heart; and although its action on the heart seems to be the same as that of digitalis, it has been used by Leyden, Göetz, and Falkenheim in the treatment of heart-disease, but in only one case with any appreciable benefit. It is more uncertain in its action than digitalis, and is apt to cause diarrhœa, though it may eventually prove of service in cases where digitalis fails. It may be given in pill form, in dose of one-seventh grain, from four to ten pills being given daily.

THE THERAPEUTIC GAZETTE AS A MEDICAL IRRIGATION SYSTEM.

WHEN the present editors took charge of the THERAPEUTIC GAZETTE it was with sundry misgivings and considerable hesitation, which were only overcome by the hopeful confidence of its publisher. It was greatly feared that the change of character in the journal, its enlargement, and especially the doubling of its price, would interfere with the continuance of its great practical success. We are, however, very happy to inform our readers that the subscription list has not shrunken, but rapidly increased in size, until in the course of three months the publisher has considered himself justified in taking the final step towards putting the editors at their ease. There has been in the last three months just complaint that the journal was behind time in its appearing. With the printing-office at Detroit and the editorial sanctum in Philadelphia, it has proved to be almost impossible to secure promptness of publication. Losses in the mail, lack of promptness in delivery, and the very distance itself seemed insuperable obstacles to the rapid reciprocal performance of the functions of publisher and editor. To obviate this, Mr. Davis has contracted with the J. B. Lippincott Company, who will hereafter print the journal. The well-earned reputation of this publishing company is sufficient guarantee for the future typographical excellence of the Gazette, whilst, after the present number, there can be no longer excuse for delays in publication.

We take this opportunity also of assuring our contributors of the wide audience which they secure through our channels. The actual official count made and reported to us by Mr. Wetzel, who has charge of this department of

the publishing house of Mr. Davis, shows that the Gazette has 13,259 bona-fide subscribers. The exchange list is 240 : there are about 200 complimentary numbers given away, mostly to the officers of the government and to regular contributors to the journal, making a total circulation of 13,699. In confirmation of this report of Mr. Wetzel, there lies upon our table the official statement of the United States Post-Office at Detroit for the March issue of the present year, showing that the total weight of the Therapeutic Gazette for the month was 5335 pounds. This is equivalent to 12,194 copies. To this figure must be added foreign subscribers, whose copies must be sent under postage stamps, 576, and Detroit subscribers, 84, the latter being distributed by messenger, giving a total of 12,854. The 833 needed to represent the number of 13,699 is readily accounted for by the variations in the weight of the Gazette, by copies sold through the trade, by straggling copies sent under postage stamps in answer to inquiries at the post-office, and by errors in weighing, etc.

The editors also know that the edition contracted for with the J. B. Lippincott Company is 15,000 copies, and we are therefore warranted in stating that the Gazette has a circulation of nearly 14,000 copies.

We do not enter into this detail for the purposes of self-laudation, but because it has been denied in certain quarters that the Therapeutic Gazette has the circulation which it has, and because it is repeatedly affirmed of certain other medical journals that they have the largest circulation of any journal in the United States, without giving any definite details. As we do not know the circulation of other journals, we make no such claims for the Gazette; but considerable editorial experience convinces us that the average American journal has a circulation of not over a thousand copies, and we are very well satisfied to be able to offer such a far-reaching series of irrigation canals between the springs of medical knowledge and those who are nourished thereby for a harvest of useful deeds.

VALOIDS.

WE print in another column a communication from Dr. F. E. Stewart concerning the term "valoids." We entirely sympathize with him in his condemnation of the perpetually recurring attempts on the part of pharmacists to invent new names, to vary preparations slightly from officinal standards, and by honeyed words to catch the professional flies which seem so to abound. We must apologize to our readers for the inadvertency which allowed the original article on valoids to pass through the meshes of the editorial strainer The pharmacopœiæ of Great Britain and America are carefully prepared after due consultation among the best medical and pharmaceutical practitioners of the two countries. Their processes are continually criticised and improved as practical knowledge is gained in the pharmaceutical laboratories, and there is no reason for believing in the truth of any assertions on the part of interested proprietors which claim for a preparation of their own superiority over those conforming with the officinal standard. Unless our medical practice is to be swept out into the tumultuous sea of chaotic therapeutics, it is essential that we keep ourselves close to the officinal buoys.

A CORRECTION.

AT the request of the publisher of this journal, it is announced that the advertisement of the Call Publishing Co. of Chicago, Ill., with reference to R. M. & Co. Standard Cyclopedia, which has appeared in the THERAPEUTIC GAZETTE for the months of March and April, was admitted under a misunderstanding as to its character. It appears that other periodicals have been similarly deceived, and by recent developments it has been shown that the Call Publishing Co., of Chicago, as such is a fraud. The editor of the *Medical Age*, Detroit, proposes to publish for the benefit of the medical profession a full exposé of this concern, and those physicians who feel interested in the matter may receive a copy of the number containing such exposé on application to the publisher of this journal.

EUPHORBIA PILULIFERA IN RESPIRATORY AFFECTIONS.

DR. BANCROFT has used this remedy with good success in bronchial catarrh, while Dr. Mattheson recommends it in bronchial asthma. This plant, which, besides its unquestioned antispasmodic properties, is also credited with tonic and slightly narcotic virtues, has hitherto been treated with strange neglect; possibly the erroneous use of the less potent Euphorbia parviflora instead of it can account for that.—*L'Union Médicale*, No. 139, 1884.

Reports on Therapeutic Progress.

ON DIETETIC ERRORS IN FEEDING INFANTS.

Considering the unquestionable general improvement of sanitary conditions, the special progress made of late in the physiology of digestion, and, lastly, the great attention which is being paid to the preparation of suitable artificial substitutes for the natural food of the infant, the great death-rate of infants is a matter of surprise. One of the most important affections of childhood, and one which is clearly due to some nutritive defect, rachitis, has increased absolutely and relatively during the last decade. Hence it seems that the artificially prepared articles of diet either do not possess the value claimed for them, and that the true substitute for mother's milk is yet to be found, or that the mode of their exhibition is at fault. Dr. Hüllman, of Halle (*Mittheilungen des Vereins für Aerzte, in Nieder-Oestreich*, Jan. 15, 1885), inclines to the latter theory, and presents his views on the subject in a very interesting paper. Reviewing the formerly used dietetic articles of children, Hüllman incidentally mentions that Liebig, recognizing the defects of the plan of feeding in vogue at that time in a grandchild of his, was led to compound his famous soup-powder. Although this preparation soon afterward lost its rapidly established reputation, the idea that an artificial substitute for mother's milk could be constructed led to the preparation of the numerous so-called children's foods. Still, the fact that neither cow's milk, however altered or improved, or any other food-stuffs, gave as satisfactory results as mother's milk, could at all times be recognized.

Animal milk was regarded as a natural food for children, on the supposition that human and animal milk differed only quantitatively, not qualitatively, until Biedert proved the chemical difference between the caseine of human and animal milk.

It is a universal law throughout, established for all mammalia, that the only perfect food for an offspring is the milk of a mother of the same class, and that milk from another class of animals has merely the value of an article of diet. Hence mother's milk being the only perfect food for an infant, and cow's milk simply an article of diet, it follows that an infant during the first four to six weeks of its life ought to receive no other food save mother's milk. Farinaceous matters would be objectionable, as the infant does not secrete a sufficiency of saliva to change the starch to sugar, and as the pancreas does not secrete the diastatic ferment until after the first month.

Regarding cow's milk, the principal substitute of mother's milk, authorities agree that it is given in far too large quantities. Another error consists in allowing the child to drink milk in long-continued draughts, like water. It is impossible for the stomach to digest large quantities of caseine, unless frequent intervals are allowed for recuperation. Next to the excess of the absolute quantity and the faulty manner of ingestion, the error of feeding the child too frequently must be mentioned. The child ought, during the first two or three months of life, get its feeding-bottle every two or three hours. When asleep, the child ought on no account to be awakened to feed, nor get the bottle when and because it cries. The crying infant has very rarely hunger, but usually some other unpleasant sensation, which by feeding is not only not removed, but often aggravated. It is true that the bottle soothes the child, but if the fluid be lukewarm and slightly sweetened water, the child could be as quickly and more permanently quieted. The child often wants to drink only, and not always to eat and to drink; often, again, it becomes quiet as soon as freed from the inconvenience of bed and covers. A certain regularity in partaking of the meals, so important in adult life, is imperative in the tender age, with its limited capacities for digestion. One of the gravest errors committed by mothers, and even physicians, regarding the welfare of children, is the heedlessness and negligence with which they regard diarrhœa. The preposterous assumption that the diarrhœa comes from teething, and prevents cramps and convulsions, slays thousands of children every year. Every diarrhœa ought to be regarded as a dangerous disease. The physician is to examine carefully the evacuations, and to eliminate from the diet of the child such articles as are even microscopically found in the fæces, and which constitute the cause of the affection. Milk is injurious in every form of diarrhœa.

Epitomizing Hüllman's views, we obtain the following conclusions:

1. Mother's milk is the only perfect food for the infant.

2. The infant ought not to be fed artificially during the first four to six weeks.

3. Cow's milk is the best substitute for mother's milk.

4. The quality, quantity, and mode of in-

gestion of food-stuffs ought to be equally considered.

5. Diarrhœa in childhood must be regarded a grave affection.

TREATMENT OF SCIATICA.

DR. DEBOVE presents a novel treatment for sciatica, which he claims to be very effectual in producing a rapid and permanent cure. He freezes the skin with chloride of methyl, applied by a specially constructed apparatus to the entire area of pain, from the sacrum to the malleolus. The skin freezes instantly, grows white and hard, like a stone, the patient experiencing a sensation similar to that produced by the application of the actual cautery. An erythema usually appears on the frozen parts.

The result is claimed to be equally excellent in old as in recent cases of rheumatic sciatica, the patient being able to walk at once after the application of the cold. Debove thinks that this treatment may also be applicable in other forms of neuralgia, in which pain is a prominent symptom.—*Mittheilungen des Vereins f. Aerzte, in N. Oestreich*, January 15, 1885.

THE ALKALOIDS OF QUEBRACHO BARK.

HARNACK and HOFFMANN succeeded in obtaining three alkaloids from the bark of quebracho, aspidospermine, quebrachine, and aspidosamine, which they examined experimentally as to their therapeutic action (*Zeitschrift für Therapie*, February 15, 1885). The quebracho alkaloids cannot be regarded as organic bases of a powerful poisonous action, unless they are directly introduced into the blood. Quebrachine is the most energetic of the three, and acts chiefly as a paralyzant of the respiratory centre. The question arises whether any application of these alkaloids for practical therapeutics be possible or desirable. The therapeutical action of the bark cannot be solely attributed to its nauseating action, as in the case of ipecacuanha and apomorphine, but a direct impression of the drug on the respiratory centre can no longer be excluded. Its therapeutical action can be explained by the depression of excitability of the respiratory centre which it causes; hence the drug can be classed with morphine and prussic acid in this respect.

The remedy is especially indicated in dyspnœa, not when depending upon an insufficient aeration of the blood in the lungs, an impediment to the air-supply, but in dyspnœa resulting from circulatory interferences or heart-disease. Its usefulness in dyspnœa resulting from asthma, emphysema, chronic pneumonia, and exudates in the chest has often been tested.

The alkaloids are more eligible than the bark itself, on account of greater precision attainable in the dose, and because they also allow of a subcutaneous application.

Quebracho easily yields its active principle to warm water, and the infusion is sufficiently stable for general use. Penzoldt and Maragliano have made some clinical experiments with the alkaloids, and found them to act as nauseants, and under certain conditions also as emetics. Further experimental and clinical examinations are evidently needed to further elucidate the therapeutic value of these alkaloids.

HYSTERICAL FEVER.

DR. DEBOVE, in a communication to the Société Médicale des Hôpitaux, describes what is obviously a hysterical fever, although, as far as we know, this term has not been in existence before. A woman of twenty-four years of age, having been under his treatment for five years, presented a number of the most heterogeneous symptoms, among which a persistent moderate fever baffled all explanation.

The hysteric element was quite prominent in the case, but no tubercular or malarial taint, or any other cause sufficient to account for the persistent fever, could be ascertained; so the diagnosis of hysterical fever was given by several consulting physicians.

This observation, the first, probably, of the kind recorded, is of sufficient interest to induce physicians to examine the temperature of all hysterical cases under their charge.—*Progrès Médicale*, February 21, 1885.

ON THE ABORTIVE TREATMENT OF TYPHOID FEVER.

We occasionally read of the so-called abortive methods of treating typhoid fever, but do not think they are frequently resorted to in general practice in this country. The treatment with calomel, which belongs to this category, could hitherto claim but little success in either aborting the affection or influencing its severity. Dr. KALB (*Wiener Med. Bl.*, Jan. 29, 1885) claims that it is not the remedy which is at fault, but the mode of its admin-

istration. Mercury introduced through the digestive tract ultimately reaches the intestines, where, on account of the lesions of the fever, absorption is greatly impeded or partially prevented. This led Kalb to employ mercurial inunctions, and he states that he has obtained very favorable results in more than one hundred cases of typhoid fever.

Being called to attend a case which he suspects to be typhoid fever, Kalb orders ungt. hydrarg. ciner. ʒiss, to be divided into six equal parts, the first to be rubbed into the abdomen on the first day for about half an hour. The second part is rubbed into the inner side of one thigh on the second day, after having carefully removed the previous inunction of the abdomen with soap and warm water. The third part is similarly applied on the third day to the other thigh; the fourth part again on the abdomen; the fifth and sixth again on the thighs, all inunctions being made in the evening. Internally, calomel in ½-grain and opium in ¼-grain doses were given every five hours in capsules. Aside of alcohol (cognac and arac in water or coffee) in larger doses, nothing else was allowed.

On the second day the temperature fell a little, but rose again to its prior height, and became stationary for seven days. On the eighth day, *i.e.*, the second day after the completion of all inunctions, the temperature fell to its normal standard and, slight variations excepted, remained normal. The general state of the patient did not differ from that observed under the routine treatment. In rare cases the temperature was noted to fall even during the inunctions, but to obviate the risk of an eventual rise it is advisable to complete the six inunctions as stated. The pulse was generally, for several days more, 100 or 120, but fell sometimes simultaneously with the temperature to normal. Profuse perspiration and general improvement nearly always followed the reduction of the febrile temperature; a slight bronchitis and splenic engorgement being the only patent pathological conditions which persisted for some time.

Kalb does not wish to present the inunction treatment as an infallible cure, but simply to point out its unquestionable superiority to any other treatment. He claims that eighty per cent. of those treated with inunctions present a normal temperature within ten days, counted from the beginning of the inunctions. This treatment, though, can only be successful when begun before the appearance of the rose-rash.

To obtain comparative results, Kalb has repeatedly treated typhoid fever patients in the same ward with this inunction method and other modes usually resorted to, but found the difference in the results in favor of the former so striking that all patients insisted upon the inunction treatment.

Salivation having never been observed in any patient, Kalb concludes that typhoid fever patients are not subject to mercurial stomatitis. The danger of profound constitutional depression resulting from the withdrawal of all food must be promptly met with a persistent and energetic alcoholic stimulation. Relapses appeared to be as frequent, or even more frequent, than in ordinarily-treated patients, but were always traceable to a dietetic error.

Kalb acknowledges that the robust constitution of the people upon whom the observations were made had some influence in determining the type of the fever, but holds that the inunction treatment could always abort fifty per cent. of all typhoid fever cases. This being a higher percentage than has ever been obtained in this country with any form of treatment, it seems worth while to try Kalb's method in hospital practice, and compare the results with those obtained with the ordinary expectant treatment of typhoid fever. Of course uncertainty in the diagnosis detracts greatly from the value of any deductions made from the above statements.

ON THE CAUSES AND PREVENTION OF DEATH FROM CHLOROFORM.

The question whether ether or chloroform be the preferable anæsthetic is answered differently by different practitioners, and in different countries. The general experience of American physicians seems to testify to the greater safety attending the use of ether, hence we find ether almost invariably employed, save in diseases of children and in gynæcological practice. Fatal accidents attending the administration of chloroform being reported occasionally, we ought to inquire into the pathology of the fatal issue with the view of thus learning how to prevent it.

Dr. Struve (*Deutsche Medizinal Zeitung*, February 2, 1885), reviewing the various causes capable of producing death during inhalations of chloroform, states that we obtain no conclusive evidences from post-mortem examination nor the mode of dying as to what constitutes the actual and constant cause of death. The post-mortem appear-

ances—dark coloration and great fluidity of the blood, air-bubbles in the blood, fatty degeneration of the heart, valvular lesions, hyperæmia and extravasations in the lungs, anæmia or hyperæmia of the brain, early appearance and long duration of the rigor mortis—are not constant, and occur in death dependent upon quite different causes. Experiments on animals have simply shown that the cerebrum is first affected, next the cerebellum, then the medulla spinalis, and lastly the medulla oblongata, the centres of respiration and circulation being ultimately paralyzed. Aside of cases in which death is probably due to shock, or manifestly to the entrance of foreign bodies into the air-passages (artificial teeth, chewing tobacco, vomited matters), the occasional appearance of a peculiar idiosyncrasy to chloroform cannot be fairly denied. As fatal accidents occur most frequently in minor operations, it seems probable that the narcosis was not profound enough in these cases, and that death was due to asphyxia, caused by reflex action. The failure of the heart occasionally observed at the beginning of the narcosis must be attributed to reflex irritation of the trigeminus, the branches of which are the first nerves to be exposed to the chloroform vapors. The age of the patient does not seem to influence the issue of the narcosis; fatal accidents are more frequent in the advanced stages of the narcosis.

That the mode of the chloroform administration exercises a certain influence on the nature of the issue seems highly probable. The use of the Esmarch-Skinner mask offers the greatest advantages, while Junker's apparatus is decidedly objectionable, as particles of chloroform can easily be thrown into the respiratory passages through the pressure on the balloon, and thus cause asphyxia. The ordinarily employed method of improvising a funnel with a towel and closing the small aperture with cotton, is as good as any of the more elaborate methods.

To prevent a lethal issue in chloroform narcosis, we should in the first place perform all minor operations without constitutional anæsthesia (resorting to cocaine, freezing, or the ether spray), or, where general anæsthesia is necessary, await the induction of complete narcosis, as shown by the disappearance of the palpebral reflex, before beginning to operate. Previous evacuations of bowels and bladder ought to be provided for, to secure unimpeded motion for the diaphragm; likewise, all closely-fitting articles of toilet or garments are to be removed from neck, chest, and abdomen. It need not be added that the lungs and heart of the patients ought to be carefully examined, and that in subjects affected with heart-disease, epilepsy, or alcoholism, the utmost caution is to be used.

Regarding the preparation of chloroform itself, we ought to take care to employ only a pure, undecomposed spirit of a neutral reaction, or better, the so-called chloral-chloroform. It has been proposed to mix chloroform with alcohol, ether, turpentine, or morphine; subcutaneous injections of morphine do not only reduce reflex action, but also prolong the narcosis, though gradual slowing and suspense of respiration follow their employment more frequently than the exclusive exhibition of chloroform. Vachetta recommends to give 80 grms. of marsala previous to the chloroform inhalations. Schäfer proposed an atropine injection to prevent reflex failure of the heart.

A point to be observed at the commencement of the narcosis is to allow of a sufficient inhalation of air. Attempts at vomiting are no cause to withdraw the chloroform, as they often disappear spontaneously; but actual vomiting calls for an intermission of the inhalation, a slight raising of the trunk, and sideward movement of the head. The mouth ought then to be carefully cleansed. Pulse and respiration require continual watching; a sudden mydriasis (paralysis of the oculomotor nerve) indicates the approach of collapse, and necessitates prompt action. The tongue is to be seized at its tip and drawn forward; luxation of the lower jaw may eventually be indicated, and is readily accomplished by the so-called Heiberg manipulation. To secure a free admission of air, neck and head are to be lowered, and the thorax raised. Kappeler recommends to catch the hyoid bone with a small, sharp hook externally, and to draw it forward. If, however, respiration stops, it is not prudent to lose too much time with stimulation by ammonia, cold douches (especially serviceable when directed to the cardiac region), rubbing of the skin; but Sylvester's artificial respiration or galvanic irritation of the phrenic nerves are to be resorted to, and, if necessary, persisted in for two hours. If syncope be present, artificial respiration has to be accompanied by a rhythmical pressure to the cardiac region. Acupuncture and electropuncture of the heart should not be practised. Nélaton recommended half inversion of the patient, while Schuppert saved three patients by total inversion. Liebreich proposes injections of strych-

nine, in conjunction with artificial respiration. In cases of asphyxia, nitrite of amyl may also be tried; tracheotomy is to be performed when foreign bodies are suspected in the air-passages.

Finally, it is worth remembering that several narcoses of long duration ought not to be performed in succession in a closed room, but that ventilation should take place after every operation.

Many of the remarks, as will be readily seen, are equally applicable to ether.

PHORMIUM TENAX (NEW ZEALAND FLAX) AND ITS THERAPEUTIC VALUE.

Somewhere about the year 1869 or 1870 a letter appeared in the *Melbourne Argus*, signed by MR. FRANCIS A. MONCKTON, bearing witness to the extraordinary healing properties of the *Phormium tenax*, commonly known as New Zealand Flax. From that time until the present he has used it in hundreds of cases, including lacerations and amputations of every description, and he has no hesitation in saying that there is nothing known in the old world that can equal it in producing healthy granulations (*Australasian Medical Gazette*, January, 1885). Mr. Monckton uses a strong decoction—the stronger the better—made from the roots and butts of the leaves, boiled for twelve hours. At one time he had to make it fresh every second day, as it readily ferments and deteriorates; but, since carbolic acid came into vogue, he keeps it for any length of time by adding about an ounce of equal parts of carbolic acid and glycerine to every quart. Mr. Monckton says he requires no other antiseptic precautions, but simply syringes the lesions occasionally with it, and maintains cotton-wool or lint, soaked in it, constantly to the parts affected. If there are no foreign matters to be discharged there will be no discharge, in support of which he instances the case of a man whose forearm he lately amputated after it had been shattered through dynamite. The ligatures were thirty-two days in coming away, and the amount of pus from the operation up to that time would not altogether amount to a tablespoonful. The same patient had the soft parts of the other forearm torn and blown into such a mass of shreds that the members of the staff thought it was hopelessly lost beyond repair. Mr. Monckton asserts that with the same treatment it became as sound and useful as before, and exhibits only scars, showing where new skin had been formed.

THE TREATMENT OF DROPSY BY CONCENTRATED SOLUTION OF CATHARTICS.

DR. MATTHEW HAY, whose name is well known to us as the author of an extensive monograph on the action of the saline cathartics, proved that if the salt be given in a concentrated solution when the alimentary canal contains little or no fluid, it produces an immediate and very decided concentration of the blood, owing to the blood becoming deprived of a large amount of water through the intestinal secretion which the salt excites. He found, however, that this concentration of blood did not occur if the salt is administered in dilute solution, or if the alimentary canal contains much fluid at the time of administration. This observation led Dr. Hay to the employment of a saline cathartic in a case of ascites from organic heart lesion, six drachms of sulphate of magnesia being given in two tablespoonfuls of water, the patient being kept without food or liquid for at least twelve hours before the dose, and no water given afterwards. The result was that in twenty-four hours the anasarca was greatly diminished and the dyspnœa entirely disappeared, the purgative action of the salt commencing in less than an hour after its administration, and causing several evacuations in the next few hours. In a few days the dropsy had disappeared, and there was no return during the month of observation. Dr. Hay added that he found this treatment more useful in general than in local dropsy; and of general dropsies, most beneficial in those dependent on the stasis of the circulation, such as in cardiac dropsy. The successful result of this case induced DR. WILLIAM G. EGGLESTON (*Journ. Amer. Med. Association*, March 28, 1885) to employ the same treatment in a case of pleuritic effusion which occupied the entire left pleural cavity, displacing the heart to the right side of the sternum, and causing flatness on percussion over the whole of the left side up to the clavicle. The patient refusing to submit to the operation of tapping, he was ordered to abstain from water and liquid food as much as possible, and to take next morning sulphate of magnesia, ʒvi, in less than half a glass of water.

When the patient was seen two days afterwards, there was a marked decrease in the amount of effusion. The level of the fluid was between three and four inches below the clavicle, the dyspnœa had decreased, and, with the exception of weakness, the patient felt better. The salt had operated first in about three-quarters of an hour, and during the day there had been eight other large watery evac-

uations. As the patient said, the water had literally poured from him. Another dose of the salt, ℥iv, was ordered to be taken the next morning, August 11. When seen on the 12th, the fluid was still further diminished, and fl. ext. jaborandi, ♏ xx, administered, which produced a copious perspiration. On the 15th of August the fluid had almost entirely disappeared from the chest, the lung had resumed its functions, and there was no dyspnœa. When last seen, February, 1883, there had been no return of the fluid.

Dr. Hay remarked that the alteration of the volume of the blood takes place apparently without any change in the blood-pressure, and the blood would, therefore, appear to abstract the tissue-fluid in virtue solely of its concentrated condition; also that the "presence of the salt in the blood may also influence the tissue-fluids by acting on them endosmotically." It would seem, however, that the presence of the salt in the blood could scarcely be reckoned as a factor in this action The concentrated condition of the blood would be sufficient for an osmotic action into the vessels from the tissues, and seeing that the fluid in the intestines is so much more saline than the blood, exosmosis would not be likely to occur even to a limited extent, sulphate of magnesia being of such low diffusive power that it does not readily find its way from the intestinal canal into the blood.

The fact noted by Dr. Hay, that the concentrated saline cathartic removes the fluid both by the intestines and kidneys, was also noticed in the case of Dr. Eggleston's patient. While sulphate of magnesia produces such an abundant intestinal secretion, there is but little intestinal irritation and systemic disturbance, and its great solubility is a point in its favor, as it is not necessary to take the large amount of water which would be required to dissolve some of the other salines, such as sulphate of soda. This rapid removal of fluid by two channels is an important consideration in critical cases of dropsy, and is worthy of a further trial.

THE INTERNAL ADMINISTRATION OF TURPENTINE IN CUTANEOUS DISEASE.

It has been firmly established that a large proportion of the diseases of the skin are external expressions of a defect of some part of the internal economy, and that the rational treatment of all such cases lies in the removal of that defect by appropriate measures, with such local applications as the skin eruptions may require; and no intelligent practitioner would attempt to remove a gouty eczema or other eruption, for example, by arsenic or any other so-called specific. On the other hand, it can scarcely be denied that the skin may, like other organs, take the initiative in disease; in such cases we may fairly resort to those drugs which have a direct action upon the skin. Finally, there are cases which are secondary, but in which either through our ignorance of the patient's surroundings, or from other defects in our knowledge, we are unable to detect their primary cause, and we are driven as the refuge of the destitute to resort to specifics.

The number of drugs at our disposal which have a direct influence upon the skin are but few in number; arsenic rightly holds the first place, and then at a long interval come sulphur, antimony, chrysophanic and carbolic acids, and one or two others of still more doubtful utility. Arsenic acts upon the epidermis chiefly, and it is not well determined how the others act. In the *Practitioner*, March, 1885, DR. H. RADCLIFFE CROCKER publishes an important paper in which he endeavors to establish the claims of the turpentines to be added to this meagre list; not, however, being put forward as a perfect cure, but as reducing hyperæmia, and placing the patient so far on the way to recovery that a short supplemental local treatment easily removes the remains of the lesion. He was first led to use turpentine internally from the fact that having used it as an external application for psoriasis for a long period, he found that, like chrysarobin, when rubbed into one side of the body, the other side also improved. He was, therefore, led to give it internally, and the results, he states, surpassed his expectations. He reports in extensive detail the case of a man aged 69, who had suffered from general psoriasis of six years' duration. He was given 15 minims of oil of turpentine in emulsion of acacia three times a day, and the dose gradually increased up to 60 minims. After a week's use it was found that the white scales were not so adherent, and the subjacent skin was less hyperæmic. A large part of the body was quite devoid of large crusts, and in other places they were easily detached, while some patches began to clear up in the centre. This improvement continued for about a month, only slightly progressing, when the dose of turpentine was increased to 75 minims, which was followed by the appearance of albumen in the urine. The dose was then reduced to 50 minims, but as a little blood and considerable quantity of

albumen could still be detected in the urine, the administration of the turpentine was therefore stopped, though the patient experienced no discomfort. During the whole of this period of treatment no external means were employed, and, although the turpentine did not completely remove the eruption, the improvement was so remarkable that the drug was employed as the sole method of treatment in thirty other cases of psoriasis, in most of which no external treatment was used; in a few the psoriasis was completely removed, but in most considerable improvement was manifested up to a certain point, when, as in the selected case, some external treatment was required for the complete removal of the disease. In only two cases was he obliged to discontinue the use of turpentine on account of slight strangury, and in three others the dose had to be diminished on this account. In three, the drug had to be discontinued on account of dyspepsia, which the drug aggravated, and he now never gives it where there are any symptoms of gastric irritation. Dr. Crocker has also used turpentine internally in eczema, giving 15 minims in emulsion three times a day, with directions to drink at least a quart of barley-water. In all his cases the disease began to improve at once when the turpentine was given; some got quite well; in others some thickening remained in the places longest diseased, and these were removed by local treatment, but no local or other treatment was employed while they were taking the turpentine. His experience with this drug in other diseases of the skin than in the two diseases referred to is fragmentary, but it is said to be conclusive as far as it goes. In pityriasis rubra, Chian turpentine was given in 5-, increasing to 15-grain doses three times a day, and the skin distinctly improved. So also turpentine is a well-known remedy for purpura, but no new facts are offered in this connection. The cases in which the turpentine is contraindicated are, in his opinion, the following: children under five years old; all who have unsound kidneys or irritable bladders; most cases in which dyspepsia is present, though in some instances it can be tolerated even then; and gouty subjects, whose powers of elimination are seldom good.

The physiological action in moderate doses is considered to be that of a stimulant of a powerful kind to the inhibitory reflex centre and to the vaso-motor centre, thereby raising the blood-pressure and contracting the arterioles. This is doubtless its *modus operandi* in inflammatory diseases of the skin: the arterioles, which are abundantly dilated at the seat of the inflammation, have their calibre diminished, and the inflammation is, so to speak, starved out. It might, consequently, be expected to be useful in most diseases in which this feature is prominent, and it is, therefore, not in any sense of the word a specific, and fails to remove thickening and other consequences of long-continued inflammation, which are best attacked by local measures. Like arsenic, also, it fails to prevent fresh eruption even during its administration, but this, again, is only what we might anticipate from its physiological action. The mode of administration may be gathered from what has been already said, but it is so very important that we will recapitulate it. For adults, and children over ten years, he begins with not more than 10 minims, rubbed up with an ounce of mucilage, so as to form an emulsion. This is given directly after meals, three times a day, and the last dose should not be given within three hours of bedtime; in two of his cases there was slight discomfort on micturition in the morning, when the last dose was taken after supper, but none when the last dose was not later than six o'clock. This is probably due to the proportion of turpentine in the contents of the bladder being much greater when it has been accumulating all night, while some of it is got rid of at the last micturition, when the dose has been early in the evening. Another means of avoiding irritation of the urinary organs is to make the patient drink barley-water freely from the very commencement of the treatment, and he never gives turpentine without impressing upon the patient the necessity of frequent diluent drinks. In the first case related the urine was reduced to four ounces, whilst taking 40-minim doses, but was immediately raised to the patient's usual quantity when a quart of barley-water per diem was given.

In a few cases the drug was given in capsules, but he is inclined to think the emulsion is less liable to disagree, and he was surprised to find how few patients, even among children, made any serious objection on the score of the disagreeable taste. If the improvement is only proceeding slowly, or the condition is stationary, and the patient is tolerant of the drug, he increases the dose, by 5 or 10 minims at a time, up to 30 minims a day, unless the disease is obviously improving with the smaller dose. He seldom finds it necessary or desirable to go beyond this, though in three cases Dr. Crocker says he has gone up to drachm

doses without any ill effects; but the risk of albuminuria, or even hæmaturia, increases considerably after 30-drop doses are reached, though if the drug be stopped as soon as these symptoms appear, in two or three days the urine will have returned to its normal condition.

THE THERAPEUTIC USE OF SODIUM NITRITE.

All the combinations of nitrous acid have in common the properties of dilating the smaller blood-vessels and lowering the blood-tension, and it is therefore natural to suppose that they would prove useful in all conditions where symptoms can be attributed to or associated with increased vascular tension. That this assumption is not unwarranted has been abundantly proved by the valuable results obtained through the use of nitrite of amyl in angina pectoris and epilepsy, and also of the nitrite of sodium in the latter disease. Nitro-glycerine might also be included in the same category, and, as is well known, has been used with great success in various cardiac diseases. But whilst nitrite of amyl and nitro-glycerine act very rapidly, their effect is inferior to that of nitrite of sodium, their results not being so lasting, whilst nitro-glycerine has the additional disadvantage of causing throbbing in the head, with some degree of pain and giddiness. MR. R. M. SIMON (*Birmingham Med. Review*, February, 1885) has been using the nitrite of sodium, and reports the results which followed its use in over twenty different cases of disease. Among these were five cases of aortic disease with regurgitation, four of which were greatly improved by the use of sodium nitrite, but in the fifth there was no good found to result. One very striking case was that of a young girl of 19, who had rheumatic fever when 15 years old, and when seen was in a state of extreme anæmia and exhaustion. Her pupils were widely dilated; she could hardly speak; was breathless in a high degree, and complained of intense pain across the brow. Stimulants and digitalis were prescribed, and chloric ether ordered to be taken every four hours. Three days later she was again brought to him, in even worse plight. She had not been able to sleep, and her head pained her intolerably. She was ordered one grain of sodium nitrite, to be taken in water four times a day. In two days she reported marked improvement, and in ten days nearly all her symptoms had disappeared. Her complexion was much improved, and her shortness of breath entirely relieved. Five cases also of mitral disease are reported, in all but one of which a most marked improvement took place. From the reduction of the blood-pressure which follows the use of the nitrite, Mr. Simon was led to infer that this drug would prove valuable in those cases of granular kidney where increase of arterial tension is associated with a failing heart with dilated cavities. Five cases of Bright's disease are accordingly reported, in all of which improvement is claimed to have followed the use of this drug.

THE TREATMENT OF MASTITIS BY BANDAGING AND REST.

From the elaborate paper published in the *Amer. Journ. of Obstetrics* for January and February, 1885, DR. PHILANDER A. HARRIS draws the following conclusions:

1st. That the breasts soon after delivery are strongly disposed to secrete milk, and will usually continue to do so for a few days, even if they be not nursed. If no attempt be then made to nurse, or withdraw the milk, the secretion rapidly diminishes, and they return to their normal size and condition of inactivity.

2d. That, as a rule (to which there are probably few, if any, exceptions), the retained secretion does not undergo changes which convert it into an irritant fluid, but, instead, it remains innocuous to the walls of the ducts and acini which contain it, and under favorable conditions is finally absorbed without trouble or embarrassment to either the normal or inflamed adjacent tissues.

3d. That, as a rule, the secretion of milk continues only while the natural stimulus, as nursing or other means of emptying the breast, continue to be employed. That the secretion, either in the normal or inflammatory condition, begins to abate when such stimulus is withdrawn, and will entirely cease after a week or two.

4th. That an abundant secretion of milk which has recently and entirely ceased as the result of a complete withdrawal of stimulus, may be again recalled upon the reapplication of the child.

5th. That the presence of a decided inflammatory movement in the breast greatly diminishes secretion in the gland.

6th. That the sympathetic relation between the two breasts is almost, if not wholly, a sensory one. That neither the function of secretion nor the condition of the circulation in one breast is appreciably and directly af-

fected by either physiological or pathological processes which may be going on in the other.

Inflammation of the breast should be regarded as a progressive rather than a self-limited disease. It is attended by a train of pathological changes which become more severe and complicated until the conditions or circumstances which have produced them, and which favor their continuance, are removed.

The inflamed breast should be supported in a well-applied bandage, and no attempt made to nurse, or withdraw the secretion, until the entire subsidence of the inflammatory movement.

Sore and fissured nipples often produce inflammation of the breast. If, therefore, in any particular case we have reason to believe that the lesion will soon lead to the development of mastitis, or should it appear that a cure cannot be effected during the continuance of nursing, we shall be justified in the entire suspension of suckling through the affected part until a cure of the local trouble is established.

The well-applied bandage exerts a salutary influence on the morbid conditions which affect the nursing breast, and it is also the most grateful measure of treatment.

THE TREATMENT OF TYPHOID FEVER IN THE YOUNG.

Typhoid fever is not ordinarily a disease of childhood, but, nevertheless, children of even one or two years old do not escape. Thus in the valuable paper published by Dr. Jacobi in the *Archives of Pediatrics*, March 15, 1885, we find that twenty-five cases of typhoid fever were admitted to the children's pavilion of Bellevue Hospital from October, 1882, to September, 1884, varying in age from two to fourteen years, the average being nine years. Five of these cases proved fatal.

The symptoms observed in these cases frequently varied from what we recognize as the ordinary course of typhoid fever in the adult. In the first place, the disease is as a rule much milder in the young. In the second, the diarrhœa is usually absent, and constipation takes its place in many typhoid infants and children. Even in the cases in which diarrhœa may set in at the end of the first or second week, the illness frequently shows constipation of the bowels rather than looseness, though many of the cases had diarrhœa as one of the symptoms. The symptoms belonging to the nervous system, such as collapse, coma, or delirium, were marked in five or six of Dr. Jacobi's cases. As a rule, however, the average typhoid of infancy or childhood seems to enjoy immunity from these symptoms of this disease. The temperature of the body in mild cases was rarely high, ranging between 101° and 104°. The regularity of the temperature-curve of typhoid fever, of which we hear and read so much, was not to be detected. Instead of one daily curve, two were often noticed; instead of morning remission, there was sometimes evening remission; instead of a gradual increase of temperature from day to day, sudden high temperature was often noticed. Instead of the regular two weeks and a half or three of fever, there was often a sudden relief about the end of the second week or before, and mostly of those cases in which at the outset the symptoms were most serious. Tumefaction of the spleen was rarely to be detected, though in some cases there was a considerable swelling, and it was found that those cases in which the spleen was enlarged were nearly always those in which a relapse occurred.

Among the complications incidental to the typhoid fever of infants and children, those located in the respiratory organs are of the greatest importance. The bronchial catarrh attending every case is liable to develop into a mild or serious bronchitis, the latter into broncho-pneumonia. In the very young, hypostatic pneumonia is not frequent; pulmonary œdema is sometimes the terminus of broncho-pneumonia in very adynamic cases, while fibrinous pneumonia is very rare, and pleurisy, when occurring, is always secondary.

As regards the treatment, Dr. Jacobi believes that the rules of general therapeutics hold good for every individual case. The fever lasts a certain time; care must therefore be taken that the organism is placed in a condition to resist its influence. The main dangers may arise from the elevation of temperature, the loss of blood, diarrhœa, the insufficiency of nutrition, or finally the debilitated heart. If the expectant method of treatment means, as it has frequently been understood, the letting alone of the disease, it is right; if it means letting alone the patient, it is all wrong. It is not the disease we have to look after, but the sick. As a means of reducing high temperature, quinine did not act well in the hands of Dr. Jacobi, and he has often used the salicylate of sodium to the exclusion of quinine, though he has found that a combination of quinine and salicylate of sodium would act better

than either in cases of hectic fever. He has used antipyrine largely, and with satisfaction, in typhoid fever, pneumonia, and hectic fever, and although its antipyretic effect is undoubted, in some cases the intense perspiration was a source of weakness and discomfort. The very best antipyretic Dr. Jacobi believes to be cold, which he applies in the form of cold packing from the chest down to the thighs and arms.

THE THERAPEUTIC VALUE OF EMETICS.

At the meeting of the Harveain Society of London, held March 5, 1885, D. C. J. HARE read a paper entitled "Emetics, their Present Neglect in the Treatment of Disease; is it Reasonable? is it Right?" The subject of the communication was one of the numerous points referred to in a previous address on "Good Remedies out of Fashion." Although not a panacea, in certain cases emetics cured in a marvellously short time; and in others they alone appeared capable of saving life. The author passed in review the various members of this group of drugs, and their doses. Speaking generally, ipecacuanha was the most useful, in doses of 20 to 25 grains of the powder, mixed with water, or of 6 to 8 drachms of the wine. Now and then purgation resulted instead of emesis; but persistent diarrhœa was never set up. The chief value of emetics consisted in their mechanical action upon the viscera; the stomach was not only emptied, but its innumerable follicles were cleared by pressure, the lungs were compressed, and mucus forced out of the air-tubes, and the œsophagus, larynx, and fauces were swept clean. Allusion was made to cases of recurrent vomiting, commonly termed "bilious sick-headaches," although more justly to be called "stomach-aches in the head." The persistent vomitings were endeavors of nature to expel the slimy mucus of the gastric follicles and the morbid ferments which it contained. The desired result was often at once effected by an emetic. Many anonymous ailments, accompanied by loss of appetite, nausea, the non-enjoyment of life, ill-temper, etc., were due to a similar cause, and similarly relieved. The removal of the ropy mucus was promoted by washing out the stomach by means of warm water, which excited additional vomiting. Emetics were sometimes of signal service in severe bronchitis, and in capillary bronchitis; the fear of "exhaustion" being produced by emetics was almost confined to those who never administered one. Attacks of catarrhal croup might be cut short, in children, by half a teaspoonful of antimonial wine; and in membranous croup, expulsion of the tough exudation was sometimes effected. Emetics were useful in the early stages of continued fever, of scarlatina, and of measles, and in some cases of whooping-cough. They were decidedly beneficial in the treatment of delirium tremens, and also in acute mania. By the same means the paroxysms of ague could be greatly modified, and either arrested or rendered more amenable to quinine. Drugs and diseases bore much the same mutual relation as in former ages; and as emetics were then found useful, so they would be now, if fashion did not prevent their employment.—*Brit. Med. Journ.*, March 21, 1885.

THE DIETETIC TREATMENT OF DIABETES MELLITUS.

DR. G. C. SMYTHE reports in the *Medical Record* for February 28, 1885, a number of cases of diabetes mellitus illustrative of the value of the dietetic treatment of diabetes, and which thoroughly emphasize the fact that every case of diabetes must be studied and treated by itself. Different cases vary widely in their causes, symptoms, and pathology, and the progress already made by the disease, the age of the patient, etc., will materially influence the prognosis and treatment. Before the age of puberty little can be done to stay the progress of the complaint, but according to Dr. Smythe, if the disease has progressed so far that the sugar cannot be eliminated from the urine in the course of ten or twelve days by simply regulating the diet, a cure cannot be thought of. To prolong the life of the patient under these circumstances for a few months is the best that can be hoped for. Without necessarily agreeing with this very gloomy prognosis, the rules and directions which Dr. Smythe recommends to be followed in the treatment of such cases are well worthy of attention. Of course, the first thing which we seek to do is to free the patient's urine from sugar, and this, Dr. Smythe says, can be done in favorable cases in a few days by placing the patient upon a strictly nitrogenous diet, aided, if necessary, by evacuants, such as alkaline mineral waters. No restriction should be placed upon the amount of the liquid drank, as the patient's thirst will subside on the disappearance of the sugar from the urine. With the disappearance of the sugar from the urine all the disagreeable

symptoms subside,—thirst, frequent urination, etc.

It is a matter of surprise to note the difference in the ability of different patients suffering from this disease to assimilate foods of different kinds. Some can use starchy food in small quantities without sugar appearing in the urine; others cannot use the smallest quantity of starch, but can assimilate small quantities of cane-sugar; others can use all kinds of fruits and berries without detriment, while others cannot. Again, many patients can use milk and sugar, and consequently can use milk in all their foods where it can be used for cooking, etc., while a small quantity in others will cause sugar to appear promptly in a few hours after its ingestion; others can partake rather freely of certain vegetables like cabbage, tomatoes, and onions, while others cannot, and so on. These are some of the reasons why each case of diabetes must be studied and treated by itself. Every article of food which can be added to the list of a patient suffering from this disease is a great gain for him, and contributes very much to his happiness.

It is absolutely necessary that the diet of the patient at first should be restricted to the so-called meat diet, including meats of all kinds, fresh or salted,—beef, mutton, pork, bacon, tripe, tongue, sausage, game of all kinds, poultry; fish of all kinds, fresh and salted; oysters, lobsters, crabs; eggs cooked in any way; butter, cheese, and all oils and fats. Almost every case of diabetes, especially if seen sufficiently early, can assimilate the articles mentioned above, or a sufficient number of them to furnish him nourishment. He can drink without detriment tea, coffee, and buttermilk.

There are other articles quite numerous which are debatable; some patients can use them freely without prejudice, while others cannot. These articles should be carefully tested after the sugar has been eliminated from the urine as before suggested. This list comprises cream, curds, sweet milk, and many vegetables, such as lettuce, endive, spinach, cabbage, cauliflower, coleslaw, broccoli, string-beans, watercress, celery, asparagus, turnip-tops, young onions, cucumbers, pickles, olives, tomatoes, etc. While a majority of diabetics can eat these articles, or most of them in moderation, occasionally a patient will be found who cannot, and the only way to decide the question is to carefully test the urine for sugar after their ingestion. Most patients can use as food certain nuts, as almonds, walnuts, butternuts, filberts, pecans, Brazil nuts, but neither peanuts nor chestnuts.

There is a great difference in the power of patients to appropriate fruits; some can eat apples, peaches, and pears with impunity, others cannot use any of these; blackberries, raspberries, and strawberries without sugar will sometimes be tolerated.

It would seem that the bill of fare heretofore given from which to make selections of food would be amply sufficient to satisfy an ordinary mortal. But such is not the case. The one article not enumerated in this list, and for which they all clamor sooner or later, is bread, for which no satisfactory substitute has been discovered. It is better that all attempts to furnish bread should be abandoned. The appetite for it should be crushed out.

Patients should be impressed with the fact that their lives are in their own hands, that medicine in the present state of our knowledge is powerless to cure them, but that they can prolong their own lives indefinitely if they do not partake of food which they cannot appropriate. It should be impressed upon their minds that the more starch and sugar they eat the hungrier and thirstier they become.

In addition to the regulation of the diet, other hygienic treatment is of great importance. These patients contract cold easily. Their temperature is nearly always below the normal, usually as much as one degree, and sometimes more. The normal temperature of a diabetic is in the neighborhood of 97° Fahr. This, perhaps, is owing to the imperfect oxidation of food. The respiration of this class of unfortunates is abnormally slow. Warm flannels should be worn at all seasons of the year, and where the patient can afford it, the winters should be spent in a warm climate, or, what is better, permanent residence should be taken in a warm, equitable clime. The most serious objection to the last suggestion is that Southern climes do not generally abound in wholesome, nitrogenous food. The skin should be kept in good condition. Too much bathing should not be indulged in, either hot or cold; both methods abstract heat unduly, and should be used with great care by diabetics.

It is unnecessary to give a complete list of articles of food which cannot be used by the sufferers from this disease. Any article containing sugar or starch in appreciable quantities must not be used, such as bread, either white or brown, excepting the bran bread made by the Compton process, and that sparingly, no potatoes, rice, or preparation from the Indian corn, etc. In fact, nothing but

the articles previously mentioned as proper should be used.

OXYGEN IN THE TREATMENT OF ASPHYXIA AND POISONING.

Ever since the discovery of oxygen by Priestley, physicians have made attempts at employing this gas therapeutically in affections of the lungs, and the question naturally arose as to whether a certain amount of pure oxygen could be inhaled with impunity. Priestley himself did not regard the absorption of the gas as innocuous, for, he said, as a candle burns much quicker in pure oxygen than in ordinary atmosphere, so "the vital forces" would be consumed faster in an atmosphere of oxygen than in the air.

The various asphyctic conditions furnishing the most natural indications for the exhibition of oxygen, numerous observers have experimentally studied the therapeutical action of the gas on the animal economy during this pathological state. The latest pertinent researches were instituted by LOYSSEL (*Journal de Médecine*, Bruxelles, August, 1884), and are embodied in the following review:

1. In poisoning by chloroform, ether, chloral, opium and its alkaloids, sulphide of hydrogen, carbonic acid gas, and hydrocyanic acid, oxygen is the most effectual, indeed, the only, means of preserving life. It proved a successful resuscitant after the complete failure of all other known means, including artificial respiration.

2. Oxygen restores the sensibility and eliminates the narcosis of anæsthetized persons. Its presence in the operative-room would be an infallible safeguard against fatal accidents caused by anæsthetics.

3. Oxygen inhalation employed in cases of suffocation resulting from strangulation, drowning, or various gases, offers the best prospects for success. In the suspended vitality of the new-born it is equally valuable.

4. In all cases in which respiration has not entirely ceased, even if the intervals between the single respirations be very great, oxygen will "almost surely" sustain life, provided the inhalations are persisted in "sufficiently long."

5. If cardiac and respiratory action have stopped only a short time, the patients can "often" be restored to life through oxygen. This means of resuscitation ought to be invariably resorted to, and a very slow return of life ought to be no cause for discouragement. Cases of preserved and almost induced life in drowned persons and apparently still-born children, due to persistent endeavors with oxygen, are not infrequently reported.

6. Oxygen can be respired (inhaled) without the slightest injury in "notable quantities" (?). There is no contraindication to the use of the gas in any case of asphyxia.

VINCETOXIN, A NEW GLUCOSIDE.

The watery solution of an hydro-alcoholic extract of the root asclepias becomes turbid when warmed, and again limpid when cooled. This property TANRET (*Comptes Rendus*, 100, 277, 1885) refers to a glucoside which he calls vincetoxin. The coarse powder of asclepias is mixed with chalk-milk and treated with cold water. The solution is then saturated with chloride of sodium, the resulting precipitate washed with salt-water and dissolved in chloroform. After evaporation of the chloroform the residue is dissolved by an equal weight of alcohol. Ether is added as long as a precipitate results, and the whole is finally shaken with half its weight of water. The lower of the two fluid strata is vincetoxin, which is soluble in water. The ethereal stratum is shaken with faintly alkaline water, and then with sulphuric acid. After another neutralization the ether is evaporated, and the residue dried, which then forms vincetoxin which is insoluble in water. The formula is for both $C_{16}H_{12}O_6$. The soluble vincetoxin is a yellowish non-crystalline powder, easily soluble in water, alcohol, and chloroform, but insoluble in ether. Its watery solutions grow turbid on being warmed, but regain their prior limpidness when cooled. The insoluble vincetoxin is also non-crystallizable, easily soluble in alcohol, ether and chloroform. Although insoluble in water, it dissolves, nevertheless, in it if an addition of the soluble vincetoxin be made. Vincetoxin is a glucoside; its sugar gained by acids is non-crystallizable, inactive, and non-fermentable. Vincetoxin is precipitated from its solutions by many salts, especially by chloride of sodium.

ON COTOÏN AND PARACOTOÏN.

PROF. PIETRO ALBERTONI publishes the physiological and therapeutical properties of the preparations of coto as established by his own researches and those of other observers (*Rivista di chimica medica e farmaceutica*).

Cotoïn in doses of 2 to 3 grains, repeated several times daily, increases somewhat the

appetite in a healthy person without causing any unpleasant symptoms.

Dissolved in alkalies and injected subcutaneously in rabbits and into the veins of dogs, it does not produce any appreciable effects.

It exercises no influence on the digestive process. Passing the stomach unaltered, it is dissolved by the bile and intestinal juices; is absorbed, and can be found in the urine. Without preventing decomposition, it slightly checks its progress.

Cotoïn increases venous pressure, and produces active hyperæmia of all abdominal organs.

Paracotoïn has a similar, but less pronounced, physiological action.

Albertoni has employed cotoïn in diarrhœa of feeble-minded and phthisical patients and in children, and arrives at the following conclusions respecting its therapeutic value:

1. Cotoïn is indicated in diarrhœa which complicates various mental affections.

2. It is highly valuable in simple chronic intestinal catarrh, in the diarrhœa of cachectic and marasmic patients, and especially in all atonic forms of disease; it is inactive in the diarrhœa of alcoholism and cirrhosis of the liver.

3. In phthisical diarrhœa it is useful as long as intestinal ulceration is absent.

4. In the diarrhœa of dentition it can also be advantageously used.

It is contraindicated in hyperæmia of the bowels and intestinal hemorrhages.

The dose is 3 grains.

THE THERAPEUTIC VALUE OF CANNABINON.

Three preparations of *Cannabis Indica*, cannabinon, cannabin, and haschisch, introduced by Bombelon in Neuenahr, have been recently examined by German observers as to their relative and absolute therapeutic energy. Cannabin was found to have a very uncertain action, while cannabinon showed decided effects in doses ranging from 2 to 6 grains. It appears, though, to act differently on persons with normal and abnormal mental conditions, the latter tolerating and requiring far larger doses. A 2-grain dose, especially when the drug is exhibited for the first time, suffices mostly to produce a pleasant sleep without undesirable after-effects. Dr. Richter, stating his personal experiences with the drug in the *Deutsche Medizinal Zeitung*, regards the time of the administration of cannabinon, whether before or after a meal, an important factor in establishing a different line of action for it. Taken in the morning on an empty stomach, cannabinon causes sensations not unlike those resulting from the ingestion of haschisch, viz.: on one side heightening of the perceptive faculties, on the other their depression. Richter relates that he could understand every word if a conversation was carried on in his neighborhood and he directed his attention to it, but that the conversation would sound as if coming from a distance if he took no special pains to listen to it. The effect of a 2-grain dose, which, as intimated above, acts usually as a prompt hypnotic, can, according to the same observer, be counteracted by the will. If he did not lie down after having taken that dose he soon experienced heaviness in the head and a peculiar desire to laugh without any cause; mydriasis was also produced. This effect lasted several hours.

In a case observed in an institution, slight collapse in one instance followed its exhibition. The patient had taken the drug and then walked about, but when six weeks later the double dose was given and the patient remained in bed, no collapse occurred.

Cannibinum tannicum has been discussed previously in the Therapeutic Gazette; the hypnotic energy claimed for it is of too uncertain a character to warrant its use.

Haschisch taken in ½-grain dose (the pill-form is most eligible) produces an agreeable sleep after a couple of hours.

Richter also made some interesting observations with cocaine, and found that injections of cocaine could replace morphia injections without causing morphine hunger. The unpleasant effects of the period of abstinence are totally suppressed.

Vogelsang, who also experimented with cannabinon, speaks likewise in favorable terms of the drug. He has given it both hypodermically (15 grains to f℥ij ol. amygd. dulcis), and internally to twenty women suffering from acute or chronic mania, hysteria, and melancholia. In only two cases could any appreciable effect be observed.

One case was that of a hysterical woman who at times was seized by a maniacal delusion of being persecuted, the delusion assuming so violent a form as to require the woman's isolation. The patient, who could, as is often the case, predict the approach of the paroxysm, was given a 7-grain dose of cannabinon and put to bed. After about half an hour

sleep ensued, lasting two to three hours, after which the patient awoke without having a trace of the mania. As she herself stated, soon after ingestion of the drug her limbs began to feel heavy, then her head; that of all sleeping-draughts, she said, which she ever took, this one was the most agreeable to her.

Vogelsang later abandoned the hypodermic use of cannabinon, as he found it too irritating to the cellular tissues when given in emulsion of almond oil.

BLUMENTHAL has also tried cannabinon in four cases with only partial success.

One case was that of a lady suffering from violent pains in the neck, due probably to vertebral inflammation. Chloral and morphine, though producing sleep, had to be discontinued on account of the very unpleasant secondary effects they occasioned. A 3-grain dose of cannabinon given to the patient proved effectual without showing disagreeable features, and is still her routine hypnotic.

In another case a 3-grain dose caused highly undesirable after-effects. An hour after its use a sensation of cold and heaviness, as if lead were poured into the limbs, was experienced, besides considerable pressure in the epigastrium, and great dysphonia. The patient could not sleep, the skin assumed a grayish tint; sleep ensued only after a number of hours.

In a third case 1½ grains were given by Vogelsang, and produced a strange lassitude, muscular twitching and violent movements of the head, dizziness, dysphonia, irregularity of the pulse, and considerable meteorism. This condition lasted from 1 o'clock A.M. until noon. The preparation used in the last case was different from the one used in the first.

GNAUK, who observed the action of cannabinon in twelve cases of insomnia, also regards the introduction of the drug as a welcome acquisition of therapeutics. He points out, however, how inconstant and variable its action is, and that it by no means equals chloral in promptness and reliability. The sleep which it causes does not ensue very soon after its use, nor does it last very long. Although he used it in a 7-grain dose (in an epileptic case) without observing unpleasant effects, he obtained, on the other hand, even with much smaller doses, symptoms of slight intoxication. One patient slept, after taking 5 grains, several hours, awoke with great trembling and fright, dysphonia, and stiffness in all the limbs. As this condition did not abate within several hours, a morphine injection was given, which removed all abnormal conditions. In another case, sleep could not be obtained by a 3-grain dose, but a series of unpleasant phenomena presented themselves. Gnauk thinks that the first dose ought not to exceed ¼ grain, and that the drug ought to be discontinued if 6-grain doses prove ineffectual.

MENDEL, though treating a number of patients with cannabinon, observed undesirable effects following its use only in a single case, where vomiting and dryness of the fauces occurred. He holds it is too early to pass a final judgment as regards the worth of the drug, but recommends it as specially appropriate in cases of hysterical patients who otherwise take chloral and morphine.

THE TREATMENT OF SEVERE SPRAINS.

The popular adage that a sprain is often worse than a broken bone is a surgical truth. To the life-comfort of patients and the reputation of practitioners, few injuries are more important than severe sprains. They are causes of acute pain, and often protracted disablement; and, subject to constitutional states, are the most potent factors in the evolution of articular diseases. A severely sprained joint, without actual fracture or dislocation of its constituent bones, may be the seat of extensive structural lesions, such as ruptures of fasciæ and tendons, detachment of ligaments with bony spiculæ, extravasation of blood into joints, tendinous sheaths, and contiguous muscles. With these conditions, swelling is so rapid that bony outlines and landmarks are soon effaced, and diagnostic precision becomes exceedingly difficult. In such cases MR. SAMPSON GAMGEE (*Birmingham Med. Review*, February, 1885) believes that an anæsthetic should be administered as a most useful aid to diagnosis, and, at the same time, a potent aid to treatment.

Rest, position, and pressure are, however, the sovereign remedies for severe sprains. Under their influence the process of extravasation is arrested, and that of absorption promoted. By rest is not merely meant the negation of active movement, but the maintenance of absolute immobility, and for this purpose Mr. Gamgee prefers moistened millboard splints to plaster of Paris, because the former admits of being moulded, by successive bandaging while drying, as the swelling recedes. In cases of knee- and ankle-sprains, suspension in a swing-cradle is most useful, while in shoulder-, elbow-, and wrist-sprains, a sling affords great relief after the joint has been immobilized. Immobility, however,

must not be too long continued; under uniform elastic pressure swelling rapidly subsides, and so soon as the bony outlines of the joint are restored and the pain is abated, careful movements should be commenced. After the first week a sprained joint should be moved daily, and then rested and compressed, or worked and rubbed, according to progressive indications. Pain and heat are the two signs to watch, and, according to their rise and fall, joint-exercise is to be diminished or increased. In old cases, in which heat in the joint is absent, douching, friction, and a continuous galvanic current are powerful for good. Compression, which is so beneficial in swollen and ecchymosed or swollen and inflamed joints after sprain, is paralyzing and injurious in cold and stiff ones. These want freedom, as the inflamed ones require constraint. Mr. Gamgee finally emphasizes the rule that bandaging should never be applied over a naked limb, but over cotton padding.

THE ACTIVE PRINCIPLE OF SENNA-LEAVES.

Of the numerous attempts which have been made to isolate the active principle of senna-leaves, that of Kubly is the one which has received the most general acceptance. He obtained an insoluble, non-crystalline body, which was insoluble in ether, in absolute alcohol, and in water, but soluble in dilute alcohol; but the formula which he assigned to cathartic acid, the supposed active principle, arouses the suspicion that he was not dealing with a pure body, but with a mixture, and this idea led Mr. Ralph Stockman (*Pharm. Journ. and Trans.*, March 14, 1885) to undertake a further investigation of the subject. An alcoholic extract of the solution was made of the senna-leaves, moistened with dilute sulphuric acid, in order to set free the cathartic acid from its salts, and the alcoholic solution then precipitated with hot saturated solution of baryta, by which means a pure baryta cathartate was obtained. Cathartate of lead is a non-crystalline, grayish powder; the neutral salt is readily soluble in water, the basic salt insoluble, and on treatment with water the former splits into an acid and basic salt. The baryta salt behaves in the same way, and if these salts are decomposed with sulphuric acid, a clear brown solution of the free acid is obtained. In order to demonstrate the physiological action of cathartic acid, a solution of the free acid was carefully neutralized with sodium carbonate, and a portion of it given by the mouth to a rabbit. Within an hour very violent diarrhœa occurred, which lasted for two or three hours, at the end of which time the animal died. Smaller doses caused simply violent diarrhœa. The urine in all cases gave a red color on the addition of caustic potash, just as it does when the ordinary pharmacopœial preparations of senna-leaves have been administered. Post-mortem examinations were made in four cases, when the only changes found were inflammation and hyperæmia of the intestinal mucous membrane.

It has been stated that senna preparations, when injected directly into the blood, are capable of causing purgation, and to test this a series of experiments was made. Mr. Stockman began by giving small doses subcutaneously, and by the jugular vein; but, finding them without effect, increased the dose given, until it was twice as large as that which had caused violent diarrhœa and death when given by the mouth. In no case did purgation follow the administration. The animal simply appeared out of sorts for the next few days, probably chiefly from the effects of the operation. In all these cases the urine gave the caustic potash reaction, showing that the cathartic acid had become decomposed in the blood.

ON GASTRIC NEUROSES.

The functional disorders of the stomach dependent upon pathological conditions of its nervous supply frequently present unusual difficulties both as to diagnosis and to treatment. A higher perfection of our microscopic and other scientific aids will possibly furnish some definite pathological data which will serve as a rational guide to the therapeutist, but at present clinical experience is our sole criterion in the treatment of gastric disorders, and clearly testifies to its scantiness and insufficiency. But the diagnostic acumen of the practitioner is often more at fault than the energy of his therapeutic measures, and a proper attention to the gastric nerve-supply would lead to results unattainable by the treatment of a possibly healthy mucous membrane and normal gastric juices.

Dr. Oser, of Vienna, read a paper on the various forms of gastric neuroses, reported in the *Wien. Med. Bl.* of March 5, 1885, before the College of Physicians of Vienna (February 23, 1885), which well deserves general attention.

The nervous gastric disorders are conveni-

ently classified into neuroses of motility, sensibility, and secretion. (The existence of vaso-motoric and trophic neuroses seems undeniable, though our knowledge respecting them is of the most scanty character.) The neuroses of motility are divided into those caused by increased and those caused by decreased motility. The members of the first group are:

1. A condition analogous to rumination in certain herbivora, which is usually caused by paresis of the cardiac orifice, though augmentation of gastric peristalsis is an additional causative factor. Mild forms of rumination can be relieved by energy of will, dry diet, suitable position after meals, and faradization of the cardiac orifice, while severe forms lead to grave complications, and may terminate fatally. Oser reported the following case with a fatal issue: A girl, 18 years of age, belonging to a neuropathic family, had been annoyed by rumination for some time, though without at first experiencing very embarrassing symptoms. Later rumination extended over three hours after each meal, and led to rapid exhaustion and ultimate emaciation, as she could not swallow the food again after it had been returned to the mouth. Although a mechanical treatment of two months afforded some relief, and rumination could eventually be suppressed by lying on the right side, a sudden relapse ensued, which, through the intervention of nervous vomiting and phthisis, hastened her death. Faradization of the cardiac extremity, mechanical treatment, cold-water cure, and the most diverse forms of diet, had all been tried in vain.

2. Insufficiency of the pylorus, which was first accurately described by Ebstein, and can be diagnosticated by the gradual distention of the stomach by carbonic acid gas.

3. Gastroplegia, or muscular insufficiency of the stomach.

Among the motor neuroses depending upon augmentation of the motor power we count:

1. Cramp of the cardiac orifice, often to be diagnosticated by the œsophageal bougie.

2. Cramp of the pylorus, caused often through reflex action from fissures of the pylorus, but also by other factors. The diagnosis of this form is especially valuable for the explanation of certain types of dyspepsia and gastric dilatation.

3. Gastrospasmus. The existence of a lasting tonic cramp of the stomach is still debatable, though analogous conditions in the uterus and intestines rather favor this assumption.

4. Peristaltic restlessness, discovered by Kussmaul, analogous to the same affection in the intestines. Auscultation reveals perpetual blowing and whistling; the part is never found at rest, not even many hours after a meal. The etiological basis of this disorder is entirely unknown. Though frequently found in connection with hysteria and neurasthenia, these conditions occur at times without any such foci of irritation.

5. Eructation. There is at all times a certain small quantity of air in the stomach, but of course especially either after eating rapidly or drinking carbonic liquids. Air is probably often aspired into the œsophagus and propelled into the stomach by œsophageal peristalsis. The therapeutics of this neurosis is particularly difficult. Mechanical expulsion of air rarely brings lasting relief. The focus of irritation has to be found and, if feasible, eliminated.

6. Nervous vomiting, which is frequently connected with a sexual disorder. A dislocated kidney and consequent undue nervous pressure has also been known to cause this affection.

The second part of the essay has not yet been read by Dr. Oser, and will appear in another edition of the THERAPEUTIC GAZETTE.

UNNA'S NEW BOUGIE TREATMENT OF CHRONIC GONORRHŒA.

Every practitioner knows that a chronic gonorrhœa, with a thickened mucous membrane, narrowing of the urethral lumen,—*i.e.*, incipient stricture,—cannot possibly be cured by injections. Their effect is neither sufficiently powerful nor localized; besides, the stricture prevents the injected liquid from reaching all superior parts of the urethra, the frequent seat of a chronic stubborn gonorrhœa.

It is UNNA's merit to have first introduced the combined effect of mechanical dilatation and the simultaneous therapeutical impression of astringent or disinfecting drugs.

His treatment consists in the introduction of tin bougies, properly curved, and coated with an ointment which dissolves only at the temperature of the body. His routine ointment consists of

Ol. cacao, ʒiii;
Ceræ flavæ, ʒss–ʒi;
Arg. nitr., gr. xv;
Bals. Peruv., ʒss–ʒi.

He allows the bougie to remain in the urethra for two to fifteen minutes. The ointment melts wholly, of course, within two minutes, and fills the entire lumen of the urethra. Larger bougies are gradually introduced, until complete removal of the stricture has been accomplished. The stoppage of the gonorrhœal flux is rarely difficult under this treatment, even in cases of very old standing. The so-called Swift's vectores, recently introduced to the profession in this country, are a decided improvement on Unna's bougies, as they consist of soluble bodies without any metallic axis.

COCAINE IN THE TREATMENT OF INFLAMED NIPPLES.

The limits of usefulness of cocaine do not yet seem to have been reached. The sphere of its therapeutic activity is, on the contrary, constantly increasing. One of the peculiar features of the remedy is the promptness and constancy of its action. Its latest employment is that advanced by UNNA in the treatment of inflamed nipples, in which affection he holds it has no rival in almost marvellously removing both pain and soreness. Every physician knows how troublesome and difficult it is to cure a fissured nipple if a baby is nursing on it. To afford prompt relief, even while the child nurses, has not been hitherto accomplished. Cocaine is said to have succeeded in all cases tried by Unna and others. The nipple is to be brushed every ten minutes, in the intervals of nursing, by a weak solution (one-half to one per cent.) of the hydrochlorate of cocaine. Within one or two days the fissure will have healed completely, and all pain consequently will have disappeared. The bitter taste of the drug does not prevent the child from nursing, nor is there any danger of its absorption and consequent untoward effects in the child. It would even possibly benefit the child when irritable and restless.—*Wiener Med. Wochenschrift*, March 12, 1885.

THE LATEST METHOD OF DYEING BACILLI TUBERCULOSI.

Slight modifications in the method of preparing the tubercle bacilli for microscopic examination recently introduced into German laboratories will undoubtedly interest all students of bacteriology.

The present *modus operandi* consists, according to the *Deutsche militärärztliche Zeitung* (1, 1885), in the following process:

1. The sputum to be examined is to be placed on a dark ground (black plate), and a particle, which must be of white color, is then put by means of a small forceps between two glass covers, which are to be rubbed against each other and then gently separated by a sliding movement. The preparation thus obtained is then laid aside in order to dry in the air.

2. Meanwhile, the coloring liquids are being prepared. An ordinary test-tube is filled with equal quantities of distilled water and oil of aniline; the liquids are vigorously shaken, and, after having added still a few drops of oil of aniline, the resulting milky mixture is filtered. The filtrate is a limpid liquid of an alkaline reaction, and is called the aniline-water. This is poured into a watch-glass, and eight to ten drops of a concentrated alcoholic solution of fuchsine are then added. (Other colorations: gentian-violet, methyl-violet.)

3. The preparation, which by this time has become dry, is drawn by a forceps (the prepared side upward) four times with moderate velocity (as fast as one cuts bread,—Rindfleisch) through the flame of an alcohol-burner, then placed in the watch-glass containing the fuchsine solution (the prepared side now downward). The watch-glass is then heated over the flame until the solution begins to evaporate.

4. This process, besides the bacilli dyeing stains all other parts of the preparation, which must, therefore, be discolored; this is accomplished by placing the preparation in muriate of alcohol (1 part pure muriatic acid to 99 parts of a ninety per cent. alcohol), after having previously washed it in water. The preparation is to remain in the muriate of alcohol for one-half to one minute, according to its thickness, until its complete discoloration be obtained.

5. In order to facilitate microscopic examination, it is desirable also to color the ground, but, of course, differently from the bacilli. The preparation is washed and placed in a mixture containing equal parts of a concentrated watery solution of malachite-green and water (in blue colorations of the bacilli use a similar solution of bismark-brown or vesuvine), and after one or two minutes it is washed again, dried on blotting-paper, drawn a few times through the flame, and placed on the object-glass, on which, previously, a drop or two of glycerine, or, if a longer preservation be intended, of Canada balsam are dropped.

Magnifications of 400 to 500 times are sufficiently strong without requiring immersion or Abbe's apparatus.

RELATION OF PUERPERAL FEVER TO OTHER INFLAMMATORY PUTRID PROCESSES.

Recent researches instituted by DR. AUFRECHT, of Magdeburg, well known to the profession through his labors in the fields of obstetrics and gynæcology, seem to indicate an unexpected variety of sources for puerperal fever. Led by special clinical observations and the morphological identity of the micrococci of pneumonia and those of diphtheria, croup, and endometritis, Aufrecht concluded that all of these pathological conditions had one common causative factor. Having succeeded in producing diphtheritic endometritis by subcutaneous injections of dead lung-tissue and of pneumonic sputa, Aufrecht found his assumption directly proven. He also showed an analogous etiological relationship between diphtheria and endometritis.

The author was, of course, unable to explain why the same virus produced croup in one instance, pneumonia in another, diphtheria in a third, and endometritis in a fourth case. His results, however, have apparently a special value for obstetrical practice. For having traced puerperal fever to other sources than infection through the vagina, the medical and other attendants of a confined woman ought to exercise particular care to keep away from patients affected with diphtheria or any ailment belonging to the diphtheria group. It is evident that, according to this view, confinements even in houses in which cases of diphtheria have occurred ought to be, if possible, avoided.—*Deutsche Medizinal Zeitung*, January 8, 1885.

ON DERMATITIS EXFOLIATIVA NEONATORUM.

This affection was first described by Rittershain, in 1878, and usually occurs from the end of the first to the end of the fifth week after birth. Its chief feature is a reddening of the skin, generally appearing first in the lower part of the face and rapidly extending. A loosening of the skin, terminating in desquamation, soon follows. In graver cases the epidermis is lifted up by vesicles, pustules, and exudates in continuous patches. Febrile symptoms or other features of constitutional implication are never observed. Eczema is occasionally found to appear later. The prognosis is always favorable.

DR. CASPARY, of Königsberg, reports a case in the *Vierteljahresschriften f. Dermat. u. Syph.*, 1 and 2, 1884, of a child in whom the disease began on the abdomen and nates, extended on the second day so rapidly that the entire surface of the skin presented a dark-red, shining appearance, with occasional pustules or deep solutions of the continuity of the skin after their rupture. Frequent green stools, insomnia, and other nervous symptoms were present, but no elevation of the temperature. The desquamation closely resembled the analogous process occurring in scarlatina. The intense redness disappeared instantly on pressure. The entire process of discoloration and desquamation lasted for two weeks and a half.

Caspary does not think the affection consists in an inflammatory condition of the corium, but in an acute disturbance of nutrition in the upper non-vascular layers of the skin, an epidermidolysis with secondary hyperæmia in the vessels of the corium. Hence this disease is to be placed alongside of pityriasis rubra. Its universal extension would speak in favor of its being an actual dermatitis, if it were not for the apyretic condition which was observed to be a constant feature. The etiological aspects of the disease have not yet been carefully studied.

ON CARDIAC WEAKNESS.

The functional disorders of the heart presenting themselves so frequently and in so varied expressions to the practitioner are not infrequently a severe tax upon his diagnostic acumen and his capacity to afford relief.

Aside from the cardiac depression resulting as an expression of sympathy from some existing pathological condition in the system, or some definite organic lesion, there is a functional weakness of the heart, due to faulty innervation of that organ. DR. SEELIGMÜLLER, of Halle, speaking before the last meeting of German physicians in Magdeburg, held that this form of cardiac weakness could always be traced to two causes, viz., habitual sexual excitement without corresponding satisfaction, and continued intense brain-work with insufficient allowance of sleep.

In the more definitely developed cases we find general weakness, excitement, and palpitation of the heart, pains in the epigastric region, profound reaction after even mod-

erate physical or mental exercise, deepening occasionally almost into coma, persistent insomnia, hypochondriacal depression, failing nutrition in spite of good appetite, pallor, and slight cyanosis of the extremities and naso-labial region, and occasional formication in hands and feet. If we examine the heart at different times of the day we can always note the weakness of the apex-beat and heart-sounds, and the smallness of the pulse. The state of inanition is most favorable to present all symptoms of cardiac weakness. After rising, such patients usually have a pulse of about 40, after breakfast of about 50, and do not obtain a pulse of 60 before taking some wine or eating some meat. The normal frequency of the pulse is scarcely ever or only transiently reached. In very pronounced cases we meet with distinct stenocardiac paroxysms. Next to this persistent extreme cardiac weakness there is a mild, intermittent form often connected with great excitability of the heart (irritable weakness). Every excitement causes palpitation, tea or coffee insomnia, in these patients. It is difficult to decide in the single cases whether the seat of the neurosis be in the pneumogastric or sympathetic nerves or in the medulla oblongata. Intense mental impressions, no matter whether of a pleasant or unpleasant nature, tend to aggravate the existing evil. Persisting pains, neuralgia in especial, and traumatic accidents, cause likewise a frequent aggravation of the affection. Women having passed through confinements often complain of this ailment, possibly on account of the concentration of the blood in the abdomen. Improvement is generally obtainable in these cases by the wearing of a suitable abdominal bandage. In persons of an advanced age abnormal dilatation of veins in the lower extremities often leads to cardiac weakness.

The therapeutical measures to be employed are chiefly related to proper physical exercise, regulation of diet, and change of air. A sufficient allowance of sleep, especially before midnight, is to be insisted upon, and resting during daytime, even if sleep is not obtainable, is to be recommended. All violent physical strains are to be strictly avoided, while methodical, moderate gymnastical exercises, especially walking, are salutary. Forced cold-water cures are injurious, while warm baths, taken several times a week, are indicated. The diet ought to be strengthening and abundant. Coffee, tea, alcoholic stimulants, and tobacco are to be entirely avoided. A prolonged stay at the sea-shore or in the mountains has often proved a beneficent measure. The thermo-baths of Gastein enjoy an especial reputation for this affection.

ON THE INFLUENCE OF AGARICINE ON PERSPIRATION.

In the GAZETTE for January, 1885, we published an account of the investigation of Dr. Piering as to the influence exerted by agaricine on the perspiration.

Further experiments instituted by DR. PRIBRAM, of Prague, with agaricine, on persons with an abundant or suppressed perspiration, still further extend our knowledge as to the action of this drug in this connection. His conclusions, as detailed in the *Zeitschrift für Therapie* of March 15, 1885, are as follows:

1. Agaricine is a scarcely ever failing remedy for the suppression of excessive perspiration, especially in phthisical patients.

2. In the physiological state agaricine sustains perspiration at a certain constant level.

3. In cases of suppression of copious perspiration by agaricine, the cutaneous and pulmonary discharges remain essentially unaltered.

4. The urinary organs discharging the surplus of liquid, and the diminished thirst decreasing ingestion of liquids, the hydrostatic equilibrium is thus re-established.

5. Moderate perspiration yields to a single ⅙-grain dose, while profuse sweating requires repeated, equal, or increasing doses for its suppression.

6. The physiological action of the drug manifests itself five hours after its exhibition.

7. There are no undesirable after-effects attending its use.

8. Agaricine leads to improvement of the subjective state of phthisical patients by eliminating a constant strain of their flagging strength, without, of course, altering the pathological tissue-changes themselves.

A NEW TREATMENT OF LUPUS, BASED UPON NOVEL ETIOLOGICAL VIEWS.

The parasitical origin of a disease furnishes a just indication for an antiseptic treatment. The list of diseases with this etiological factor constantly increases, and profound changes in their therapeutics are consequently called for. Whether the practical results will endorse these deductions, and the microbes of diphtheria, syphilis, cholera, pneumonia, and tuberculosis prove true guides

for the therapeutist, cannot as yet be decided.

DOUTRELEPONT, having found bacilli tuberculosi in several cases of lupus, concluded that lupus is a tuberculosis of the skin, and recommended the sublimate treatment. The application consists in placing a compress, dipped into weak sublimate solutions (0.1 per cent.), on the affected part, retaining it with oil-paper and the roller-bandage. Doutrelepont's anticipations of encouraging results were even greatly surpassed. The fungous granulations soon were replaced by healthy ones, ulceration and infiltration gradually disappeared, while cicatrization rapidly progressed. In isolated cases only did the applications cause irritation, burning, and in some instances even pustules. The knots of the lupus gradually grow lax, pale, and small, and ultimately disappear. Salivation was in no case observed. Internally, Fowler's solution was given, in accordance with Buckner's recommendation of arsenic in tuberculosis. In all cases in which this treatment was employed the results were very satisfactory.

Iodide of potassium ought not to be given simultaneously with calomel, as, according to the experiments of Schaefeltd, iodide of mercury and chloride of sodium are formed in the system. Baumeister reports the case of a patient, who, as a result of syphilis of ten years' standing, had an eruption on the forehead and left eyelid, and who was given iodide of potassium. An erythematous affection of the eye suddenly appearing, was treated with the local application of calomel. Soon after the first application, the patient complained of severe pains. Baumeister found the patient with an œdematous conjunctiva and ulcerating cornea.—*Berl. Klin. Woch.*, 43, 1884.

HAMAMELIS VIRGINICA IN VARICES.

DR. TISON has used the alcoholic extract of the bark and a tincture of the leaves of hamamelis virginica in varicose veins, with sufficiently encouraging results to induce others to try the same drug in this affection. Two pills, of the strength of 1 grain each, made out of the extract were given daily before breakfast and after dinner. In hemorrhoids, suppositories of 1½ grains were ordered, and applied morning and night. The tincture is applied locally, but diluted with equal parts of either water or alcohol, to lessen the irritating effect of the alcohol. A salve prepared from 1 drachm of the extract and 6 drachms of vaseline is also applicable.

From a number of cases reported by Tison we select several to illustrate the value of hamamelis.

1. A woman of 48 years of age had œdema of the legs and varicose ulcers, with tortuous and dilated veins. After the use of 50 pills and 4 ounces of the tincture of hamamelis the ulcers healed perfectly, and the swelling of the legs and dilatation of the veins decreased considerably.

2. An equally favorable result was obtained within four months, in the case of a man 80 years of age.

3. A man of 40 years of age, with varices of the scrotum, was also cured in a short time.

4. An aged man, with dilated veins of the prostate gland, was speedily relieved by the suppositories of the extract of hamamelis.

THE INFLUENCE OF CIMICIFUGA RACEMOSA UPON PARTURITION.

At a recent meeting of the Chicago Gynæcological Society, DR. J. SUYDAM KNOX read a paper entitled "The Influence of Cimicifuga Racemosa upon Parturition."

After a *résumé* of the medical history of the drug, Dr. Knox gave the results of his clinical observations in one hundred and fifty cases of labor—fifty-seven primiparæ, ninety-three multiparæ—in which black cohosh had been exhibited. The average duration of the first and second stages of labor, in normal cases in primiparæ, was seventeen and three hours respectively. Under the influence of black cohosh, the duration of the first and second stages of labor, in the fifty-seven cases observed, was six and one-quarter and one and three-quarters hours respectively. The average duration of the first and second stages, in normal cases in multiparæ, was twelve and one hours respectively. Under the influence of black cohosh, in the ninety-three cases observed, the average duration of the first and second stages was three hours and twenty-seven minutes respectively.

From these clinical observations Dr. Knox drew the following conclusions:

"1. Cimicifuga has a positive sedative effect upon the parturient woman, quieting reflex irritability; nausea, pruritus, and insomnia, so common in the last six weeks of pregnancy, are always rendered less distressing, and often disappear under its administration.

"2. Cimicifuga has a positive antispasmodic effect upon the parturient woman. The neuralgic cramps and irregular pains of the first

stage of labor are ameliorated and often altogether abolished. In fact, during the first indiscriminate use of the drug in all cases, I had the mortification, with a few women, of terminating the labor so precipitately, and without prodromic symptoms, as to be unable to reach the bedside before the birth.

"3. Cimicifuga relaxes uterine muscular fibre and the soft parts of the parturient canal by controlling muscular irritability, thus facilitating labor and diminishing risks of laceration.

"4. Cimicifuga increases the energy and rhythm of the pains in the second stage of labor.

"5. It is my belief that cimicifuga, like ergot, maintains a better contraction of the uterus after delivery.

"It is my habit, however, to administer 15 to 30 minims of the fluid extract of ergot after the birth of the fœtal head, and I have had but few opportunities of testing this effect of the cohosh.

"My method of administration has been to give 15 minims of the fluid extract of cimicifuga in compound syrup of sarsaparilla each night for four weeks before the expected confinement. One fluidounce of the fluid extract of cimicifuga to three fluidounces of compound syrup of sarsaparilla—dose, one teaspoonful—makes just the required quantity."

In the discussion which followed, Dr. Edward Warren Sawyer thought the results obtained by Dr. Knox were astonishing. He thought there could be no doubt but that the drug had the physiological action to which allusion has been made. He would at once act upon the suggestion in his private practice.

Dr. W. W. Jaggard thought that if the influence upon parturition, so clearly sketched by Dr. Knox, was capable of demonstration, he could agree with Dr. Sawyer's panegyric. Dr. Knox's carefully prepared paper was worthy of study and investigation. Dr. H. Webster Jones, formerly a prominent obstetrician in Chicago, had advanced similar views with reference to the physiological action of black cohosh in a paper published in the *Transactions of the Illinois State Medical Society* a few years since. Dr. Jones's advocacy of the drug as an oxytocic was well known to every practitioner in the city.

Dr. Jaggard desired to call the attention of the Fellows to the following subjects in Dr. Knox's paper:

1. Dr. Knox had stated that the average duration of the first stage of labor in primiparæ and multiparæ was respectively seventeen and twelve hours; under the influence of black cohosh the duration of this stage was abbreviated to six and one-quarter and three hours respectively. It was a matter of extreme difficulty to define the limits of the duration of the first stage of labor with such mathematical accuracy. The "personal equation" assumes great importance as a possible source of error. The subjective signs and physical exploration are not always sufficient to justify the diagnosis of the commencement of labor. Thus Dr. R. Lumpe (*Archiv. für Gynaekologie*, 1883, Bd. xxi. Heft i. p. 29) concludes, from the observation of several hundred primiparæ, that the cervical canal begins to dilate from eight to fourteen days before the expulsion of the child. Other observers assign a period of much briefer duration than the typical seventeen hours of Spiegelberg, to which Dr. Knox alluded.

Apart from the difficulty in the determination of the commencement of the first stage, the duration is capable of infinite individual variation.

2. One hundred and sixty cases were insufficient to warrant such positive deductions upon an intricate therapeutical problem. In every one of the cases cited by Dr. Knox it was clearly indeterminate whether or no the effect was *post hoc* or *propter hoc*.

Black cohosh had been employed on an extensive scale in large lying-in hospitals in Germany. Every condition for accurate clinical observation had been supplied. Such conditions were competent observers, numerous cases, under absolute control for a sufficient period of time, chemical purity of the drug, and an approximately perfect system of keeping records. Up to the present time results had been of a purely negative character. It was true that Schatz had reported favorably as to the action of the drug in the treatment of certain pathological conditions of the uterus. Dr. Jaggard did not wish to be understood as dogmatically condemning the drug. The evidence in favor of its action as an oxytocic, as collected from experiments upon the lower animals or from clinical observation, was entirely insufficient to warrant the positive conclusions of the author of the paper. The subject was worthy of further investigation.

3. He thought the practice of the exhibition of ergot, before the completion of the second stage of labor, was reprehensible. It was in conflict with the obstetrical principles of the day, as deduced from clinical experi-

ence and the nature of the case. This remark was applicable exclusively to physiological labors.

Dr. Charles Warrington Earle had used black cohosh, at the suggestion of Dr. Jones and Dr. Knox, in a variety of cases, with negative results. He had about the same number of precipitate labors as occurred in his practice prior to the introduction of the drug. It was possible that he had not employed doses of sufficient size, nor for a sufficient length of time before labor.

Dr. Knox closed the discussion. In reply to Dr. Jaggard, he said that the results of his clinical experience with black cohosh were of such a convincing character that he would continue the exhibition of the drug in the future. In regard to the exhibition of ergot before the expulsion of the child, he did it to save time. The drug was not absorbed until twenty minutes after exhibition, and long before the expiration of that time the child was born. He could not spare the twenty minutes required to secure retraction of the uterus after delivery of child and placenta. In reply to Dr. Byford, he said that at the present day there were no physiological labors. Women were not Eves. By the judicious use of a drug, like black cohosh, labor was made to resemble the ideal, physiological process, as still observed among savages.

ON CHLORAL IN STRYCHNINE-POISONING.

In connection with a report on the successful exhibition of chloral in a case of poisoning with 6 grains of strychnine (*Arch. Gén.*, 7, sér. xi. pp. 74–153), Dr. Fancon presents the following therapeutic suggestions:

1. Coffee, given early and persistently, tends to check the toxic process, and serves to gain time.

2. Iodine and tannic acid likewise retard the intoxication, though the precipitates formed by them with strychnine cannot be regarded as stable and insoluble.

3. Emetics, chiefly ipecac and tartar emetic, are indicated, but prove often useless.

4. After the failure of the preceding remedies, chloral can be confidently resorted to as a potent antidote.

5. Internal administration of chloral can be safely combined with hypodermic injections of 3 grains.

6. Though the prime usefulness of chloral appears to be most marked in the first stage of poisoning, its subcutaneous employment will, even later, be advantageous; intravenous injections are to be reserved as an ultimate and extreme measure.

7. The doses of the drug must be proportionate to the intensity of the toxic symptoms. In threatening cases large doses are to be persisted in.

8. Chloral, though essentially altering the expression of the intoxication, is nevertheless unable to prevent all toxic manifestation if the poison be absorbed in a large quantity.

9. If a fatal issue does not ensue rapidly, the prognosis is not necessarily unfavorable, in spite of the ingestion of a great quantity of the poison and the long duration of the toxic phenomena.

Although it is to be hoped that future trials of chloral in strychnine-poisoning will confirm the value claimed for it by Fancon, we do not consider the exclusion of emetics or of tannic acid as a prudent or warranted measure.

THE VALUE OF PERMANGANATE OF POTASSIUM IN AMENORRHŒA.

At a recent meeting of the Chicago Gynæcological Society a paper was presented by Dr. Edmund J. Doering, entitled "Some Remarks on the Value of Permanganate of Potash in Amenorrhœa."

After a brief description of the physical and chemical characters of the drug, Dr. Doering discussed its physiological action. Bartholow, who has great faith in the drug, claims that although it parts with its oxygen with great readiness, this readiness is *not* sufficiently great to prevent the distribution of the gas into the blood. "His opponents deny this, and argue that the organic matter contained in the stomach and mucous membranes is sufficient to appropriate the oxygen of the salt, and thus prevent its entrance into the circulation."

Professor N. Gray Bartlett, a Chicago chemist, gives the following opinion:

"From the readiness with which the permanganate of potassium is decomposed by organic compounds it would seem to be ineligible for internal use. When so administered it is immediately brought into contact in the stomach with a relatively large amount of organic matter, and must necessarily be very rapidly destroyed, the manganese of the permanganate separating, in all probability, in the form of the hydrated manganese dioxide. The latter compound is an active oxidizing agent, and is possibly capable of exercising in the economy the oxidizing function which

has been ascribed to the permanganate of potassium. It would seem rational, therefore, anticipating the change which follows the administration of the permanganate, to substitute the hydrated dioxide of manganese, which can readily be prepared in a state of purity for medical use."

Whatever view may be adopted as to the chemical change which the permanganate undergoes in the human economy, the main question is as to its therapeutic value.

Professor T. Gaillard Thomas, M.D., in his address to the New York State Medical Association, expresses faith in the value of the drug as an emmenagogue. Dr. Ringer and Dr. Murrell recommend the remedy. Dr. Doering had given the drug a careful trial in thirty cases of amenorrhœa depending upon anæmia and general atony of the sexual apparatus. In about half the cases the observations were unsatisfactory from various causes,—*i.e.*, inattention to the general directions, want of perseverance in taking the medicine,—so that the conclusions arrived at were based upon fourteen cases, in each of which the cause of the amenorrhœa was entirely clear, the remedy carefully and continuously given, and the effect clearly observed.

The following conclusions were drawn :

1. Permanganate of potash in doses of from 2 to 4 grains is an efficient emmenagogue, if administered for a period of not less than two weeks.

2. Its administration in doses large enough to be effective is accompanied by severe pain, which frequently necessitates a discontinuance of the remedy, and hence impairs its value as an emmenagogue.

3. The most efficient method of administering the drug is in capsules, taken midway between meals, and followed by large draughts of some pure mineral water, like Silurian.

UTERINE IRRIGATION.

Injections into the cavity of the uterus were employed more than two thousand years ago ; for we learn that Hippocrates practised intrauterine injections, to wash out bits of retained placenta and medicate the endometrium when affected by catarrh, 400 years B.C. Since his day the operation has always been more or less in vogue. At this time it has many friends, but more opponents, probably from the imperfect manner in which it is usually performed. The objections urged against this measure may be briefly stated as follows : escape of the injected fluid through the Fallopian tubes, causing peritonitis ; absorption of retained fluid, causing phlebitis ; shock ; uterine colic ; and sudden entrance of air into a vein. The first of these is most apt to occur, and perhaps constitutes the chief danger, and the reason why this *ever* happens is because *the injected fluid does not find free exit at the os internum.*

Heretofore the profession have depended on a single-tube canula, or a double-tube canula. Now, both of these are defective in the highest degree, for in one there is no mode of egress, unless the os happens to be dilated, which is by no means always the case ; and in the other the egress can be very little, if any, greater than the ingress. And how can retained pieces of placenta, loose morbid growths, blood-clots, shreds of mucous membrane, etc., pass out through a canula? Much less efficient is the *uncertain* dilatation of the os.

Therefore it is *imperative* that the internal os (of course the cervical canal also) be dilated. To this end DR. J. W. LONG (*N. Y. Med. Journ.*, March 20, 1885) has designed an instrument which has for its first and leading principle *dilatation of the internal os.*

It is sufficiently long and small to be used through a bivalve speculum. The handle and middle part are straight. The part which enters the cervix is curved to suit that canal, and, when the blades are closed, represents three sizes of the American scale,—13, 14, and 15. The bulbous tip is acorn-shaped, and full of holes, with reversible current ; there is no hole in the immediate end. The blades, when closed, fit snugly around the tube or canula, and, when opened, expand equally in four directions. They are elastic and highly polished, being made of tempered steel and plated with nickel. They are controlled by the thumb-screw near the handle, and can be opened or closed at the will of the operator. The place for attaching a syringe is also near the handle.

The Operation.—The woman should be placed upon her back, with her hips brought to the edge of the bed, her legs flexed, and shoulders slightly raised. Now introduce a speculum, gently hook down the anterior lip of the external os with a tenaculum, and, after carefully ascertaining the direction of the cervical canal by means of a blunt-pointed sound, cautiously pass the instrument in until the tips of the blades pass through the os internum. Now, while the womb is steadied by the tenaculum, slowly turn the thumb-screw till the blades are half open, or fully

open, as may be desired. At this point the tenaculum may be removed, and the speculum also, if necessary. Of course, before the instrument is introduced it is well warmed and oiled, the fluid to be injected is prepared, and the syringe is attached. Everything is now ready for the second step in the operation. Now slowly inject the fluid, taking good care to see that the fluid returns freely into the vagina.

When the irrigation has continued long enough, the thumb-screw should be simply, and the instrument gently, withdrawn.

As to the kind of syringe used, the *fountain-syringe* seems best adapted to this purpose, because the force of the stream can be regulated by simply raising or lowering the syringe, and there is less danger of the fluid being thrown or forced through the Fallopian tubes.

GRADUAL REPOSITION OF AN INVERTED UTERUS BY A NEW CONTRIVANCE.

On June 1, 1884, Dr. James R. Chadwick admitted a patient to his private hospital with an inverted uterus. She was a slender woman, of frail appearance, who had been delivered of her first child by forceps, after a tedious labor, in September, 1883. There had been excessive hemorrhage in childbed, and the uterus was said "to have come down" at that time. There was, however, no indication of any untoward result of the confinement, except general feebleness, which kept her in bed for two or three months. Twice, at intervals of several months, she had had severe flooding, by which she had been considerably, but not dangerously, reduced. The uterus was of normal size, and inverted nearly up to the external os, which could be felt firmly encircling the inverted cervix.

A few days later, the patient was etherized by Dr. F. H. Lombard, when Dr. Chadwick made an attempt, with the assistance of Dr. G. H. Lyman and Dr. C. M. Green, to reduce the inversion with various instruments for applying upward pressure upon the fundus, moulding the organ with his finger in the intervals, but not being able, owing to the smallness of the vagina and rigidity of the perineum, to introduce his whole hand into the vagina. When the organ was drawn partially out of the vulva, he could push a finger in the rectum into the cavity made on the peritoneal side by the inverted organ, and even tried to dilate the rigid conical constriction in that way (Courty's method), but was deterred from exerting sufficient force by the fear of tearing the peritoneum. After two hours of effort, without apparent gain, the congested appearance of the uterine body and the feebleness of the patient led him to abstain. A considerable rent in the perineum was closed by two sutures. No bad symptoms supervened, but it was two weeks before the tenderness of the fundus and the cicatrization of the perineum justified further interference.

Dr. Chadwick determined that his next attempt should be by the gradual process. Accordingly, he next sought to exert steady, moderate pressure upon the fundus in the direction of the vaginal axis, by inserting into the vagina two, and, finally, three, superimposed inflated rubber rings (doughnut pessaries) of three successive sizes, the smallest being at the top and partially encircling the fundus, the largest resting upon the perineum; this worked well when first adjusted, but became speedily disarranged and inefficient. He had satisfied himself, however, that the largest ring was well retained by the perineum, and made a good basis for the erection of a superstructure with which to push up the fundus. The ring was reinserted, and through its central aperture was passed a spherical rubber pessary collapsed: the latter was then inflated by means of the rubber-tube attachment, which, passing through the opening in the ring, hung out of the vagina. The patient experienced some slight pain during the following night, requiring for its relief but an eighth of a grain of morphine. The pain ceased suddenly about thirty hours after the instruments were arranged, and the next morning he found that reposition had been accomplished. The os was still very patulous, and remained so for several days, but what was more important, the uterus was in complete retroflexion. It was replaced by means of the repositor, and the cervix kept well back by means of a wool tampon; the organ, notwithstanding, retroflexed again, owing to the extreme laxity of its tissues. This displacement recurred again and again, in spite of any vaginal pessary that he could fit, until he prevented the flexion by means of a light intra-uterine stem in addition to an Albert H. Smith pessary, wearing which she returned to her home in good health on the fourteenth day after reposition.

The gradual method has generally proved effectual in the reduction of chronic uterine inversion, and is devoid of danger. As to the precise means of applying the pressure, operators have differed, and probably different

cases call for different procedures. On the whole, Dr. Wing's method is the most efficient, and suited to the largest number of cases, especially to those patients in whom the perineum has been ruptured or is lax. Where the perineum, as in Dr. Chadwick's case, is so firm as to give adequate support, and the vagina is narrow, it seems his method offers the advantage of obviating the necessity of external straps and a rod, with the constrained position which they entail.

Should reposition prove impossible by either the rapid or the gradual systems of treatment, recourse may be had to the more dangerous but certain method of opening the abdominal cavity and dilating the constriction from within, as recommended by Dr. T. G. Thomas, or, better still, by the practice recently carried out successfully in one case by Dr. B. B. Browne, of Baltimore, of cutting through the fundus and dilating the cervix through this incision. Amputation of the inverted organ, which has been practised with fair results, may likewise be resorted to.—*Boston Medical and Surgical Journal*, March 26, 1885.

ALLEGED DANGERS IN THE USE OF CORROSIVE SUBLIMATE AS AN ANTISEPTIC AGENT.

Dr. Fraenkel, of Hamburg, draws attention (*Virch. Arch.*, 99, ii.) to an almost unsuspected danger arising from the too free use of corrosive sublimate as an antiseptic agent. His remarks are, in the first place, based upon a case recorded by Stadfelt, of death with dysenteric symptoms following upon intra-uterine injection of a solution of sublimate (1 in 1500) after adherent placenta, and are supported by the results of post-mortem examinations of surgical cases in which this solution was employed. In all these cases (fourteen in number) severe ulcerative lesions were found in the large intestine, but Dr. Fraenkel admits that in only two of these could the lesion be said to have caused the death of the patient. The appearances presented by the diseased bowel resembled those of acute dysentery, viz., more or less extensive areas of necrosis of the mucous membrane, with intense surrounding inflammation. He combats the notion that the intestinal lesions depended on septicæmia, mainly on the ground that in no case were any other of the lesions characteristic of septicæmia or pyæmia present, nor did the cases run the clinical course of blood-poisoning. Although the paramount value of corrosive sublimate as an antiseptic must be admitted, its employment is, nevertheless, not free from risk. Its immoderate use as an external application is liable to excite the diphtheritic-like inflammation of the large, and sometimes of the small, intestine, which is recognized clinically by tenesmus, colic, and bloody stools. But so far the renal changes supposed to be characteristic of sublimate poisoning have not been observed in surgical practice. The intestinal affection is most liable to occur in individuals whose nutrition is defective, or who are very fat, especially those with fatty hearts, and particularly if the sublimate has been in contact with large exposed and absorbing surfaces, as the peritoneum or uterus; therefore care should be taken to only use the weakest solutions consistent with their antiseptic property, and especially not to use them too frequently as intra-uterine injections.—*Lancet*, February 28, 1885.

A STATISTICAL CONTRIBUTION TO CEREBRAL SURGERY.

In the *Annals of Surgery* for March, 1885, Dr. R. W. Amidon publishes a valuable statistical analysis of surgical operations performed on the brain. In this he reviews 115 cases occurring since 1879, in which trephining or kindred operations have been performed for various causes. This table proves that trephining, as now conducted, is not in itself a dangerous operation, since, although in his collection of statistics Dr. Amidon has not confined himself to operations performed under antiseptic precautions, of these 115 unselected cases only 29 died. Of these, 25 presented at the time of operation symptoms endangering life, thus leaving only four cases, $3\frac{2}{16}$ per cent., in which the fatal issue could be remotely traced to the operation. As this percentage, $3\frac{2}{16}$, seems extremely low, and would render the operation, as now conducted, practically harmless, it may be well to summarize Dr. Amidon's reasons for rejecting the 25 deaths as independent of the operation. In 6 cases symptoms of abscess of the brain declared themselves before the operation was performed: in 5, a meningitis existed at the time of operation; in 4 cases shock caused death; 2 died of hemorrhage from the middle branch of the meningeal artery, not wounded in the operation; 1 died of hemorrhage from the middle cerebral artery, severed by a stab wound in the head; 1 died from a hemorrhage from a lacerated longitudinal sinus; 1 of galloping consumption, which was hereditary; 1

of pneumonia; 1 of extensive laceration of the brain, and 3 he accepts on the authority of the physician reporting them as not dying from the effects of the operation. This report is strong evidence as to the tolerance of the brain for surgical interference, the harmlessness of trephining, and the frequent harmfulness of the neglect to trephine; while it is probable that our increasing ability in diagnosticating the site and nature of cerebral lesions, and the consequent proper selection of cases, will still further reduce the mortality attending surgical interference with the brain.

A NOTE ON THE TREATMENT OF BROMIDROSIS OF THE FEET.

Few affections of the skin are more disgusting or more difficult to treat successfully, by the ordinary methods, than fœtid sweating of the feet, with or without excessive secretion. The thickened skin over the heel and anterior ends of the metatarsal bones seems to afford a very secure and ineradicable nidus for the as yet undifferentiated enzyme which induces fermentation with its fœtid products there. One form of treatment seems to be invariably successful, and, therefore, deserves to be much better known, viz., that devised by Hebra, which, he says, never fails, and recommends to be used in all severe cases. Hebra employed the following ointment:

℞ Olei lini,
Emplastri plumbi liquefacti, equales partes.
M. Ft. ung.

This is directed to be spread thickly over a piece of linen large enough to cover the sole and sides of each foot; both feet, in the first place, to be carefully washed and dried. Pieces of linen rag, well covered with the ointment, he directed to be placed between the toes, so as effectually to separate them and secure thorough application of the ointment. Over this the sock or stocking could be worn with a light, new slipper, and the patient allowed to pursue his or her ordinary calling. This dressing is to be repeated every twelve hours for ten or twelve days. The foot not to be wetted after treatment has begun, but wiped when necessary with a dry cloth, or washed with dry bran or other mealy substance should any part become dirty or caked with old ointment, etc.

Whether mild or severe, all cases are curable by it, and no other method seems to yield such a prompt and satisfactory result. To insure success, the whole of the skin of soles and sides of feet and toes must be tanned by the process, and gradually thrown off as brown leathery exfoliation in from two to four weeks. All boots, shoes, slippers, etc., worn by the patient should be discarded, because if worn again, the patient is reinfected in three or four months, and gradually becomes as bad as at first. Stockings or socks should be very carefully cleansed, and disinfected by heat or by steeping in a hot solution of perchloride of mercury (1 in 1000 of water) for several hours before being washed. Neumann directs that Hebra's ointment and dressing should be changed once in three days for nine days,—that is, three times altogether,—a method not to be relied on in many cases seen in this country. What Mr. J. S. Stewart (*Edinburgh Med. Journ.*, March, 1885) has found to yield the most satisfactory result, in treating a tolerably long series of cases, is to have the feet thoroughly washed in hot water, then steeped for a few minutes in a solution of permanganate of potash, of the strength of from four to six grains in the ounce of water. The feet are then dried, not to be again wetted until complete exfoliation of the tanned cuticle has taken place.

Hebra's lead-plaster ointment is then thickly spread on strips of cloth about one and a half inch broad, and the foot covered from the toes back over the heel as high as the malleoli with these, arranged and applied like a scultetus bandage. Each toe should first be wrapped round with a strip of clean rag half an inch broad and thickly spread with the ointment. This dressing should be renewed every twelve hours with fresh rags and ointment for a period varying from ten to sixteen days, according to the severity of the case and the thickness of the heel skin. In most cases the odor will be very much diminished by the end of the third day, and will not be perceptible by the ninth. The shedding of the skin takes place *pari passu* with the growth of the new cuticle, and may not be completed until the end of the third or even of the fourth week.

POISONING BY OIL OF TANSY.

Dr. W. W. Bailey reports in the *St. Louis Courier of Medicine*, April, 1885, a case of a young woman who was poisoned by an overdose of oil of tansy. She had been in the habit of using tansy-tea, made from the herb, at nearly every menstrual period for difficult menstruation; sending to the druggist, as was her custom, the messenger was informed that they had not the herb but had the oil, leaving

the messenger to infer that it would do as well. Accordingly one-half ounce of the oil was procured, and about two and a half drachms of it was poured into a half an ordinary tin cupful of water; this, with the exception of a small portion of the water containing about one-half drachm of the oil, was taken at one dose. Convulsions were almost at once produced, and when Dr. Bailey was sent for the patient was unconscious, foaming at the mouth, and in violent tonic spasms with dilated pupils, frequent and feeble pulse. Constant kneading on the stomach had produced partial emesis, and then ipecac, mustard, and large draughts of hot water emptied the stomach. Two drachms of magnesia were then given, and a full dose of acetate of morphine; consciousness then returned, and no unfavorable symptoms followed, and after thirty-six hours, without additional medication, she was entirely restored.

RAPID ANÆSTHESIA BY ETHER.

The following method of rapid anæsthesia by ether was suggested to DR. A. F. MÜLLER seven or eight years ago by the thought that the great length of time often consumed in etherizing patients was due to the fact of the frequent interruptions necessary to replenish the cone or towel used for the purpose, and the consequent partial recovery of the patient. To obviate the difficulty and obtain a continuous flow of pure ether vapor, he had made an apparatus, consisting of the two valves of a rubber foot-ball, sewed together at the edges and connected by a tube with a bottle containing ether, which is plunged into a bucket of hot water. Ether boils at 98° F., and vapor passes over steadily and rapidly, and is inhaled by the patient, whose face is covered by the inhaler, protected by a clean towel.

The result has been surprising, as seen in his report of eighteen cases, all etherized by this method within the last three months at the Germantown Hospital, Philadelphia. In none of the cases was there nausea previous to anæsthesia; one at least came to the house the morning of the operation having eaten a hearty breakfast. In most cases no struggling, and if so, only slight; no stage of excitement. In cases that require only a few moments for operation, the patient wakes up nearly as quickly as after nitrous oxide. After the patient is etherized, the amount passing over can be regulated by a stopcock at the bottle end of the tube.

The average time in producing unconsciousness in the eighteen cases reported was seventy-four seconds.—*Medical News.*

THE TREATMENT OF MEMBRANOUS, DIPHTHERITIC, AND TRUE CROUP.

From the valuable monograph on membranous, diphtheritic, and true croup, published by DR. J. LEWIS SMITH in the *American Journal Med. Sciences* for April, 1885, we abstract the following points as regards the treatment of these diseases. As regards preventive treatment, Dr. Smith emphasizes the importance of early recognizing the signs of implication of the larynx in cases of diphtheria. As soon as hoarseness is recognized inhalation of lime-water should be at once instituted, for although inhalations may be ineffectual against fully declared croup, they are sufficient in the large proportion of cases to relieve that degree of laryngitis which is indicated by a simple hoarseness, and which, if it continue, might terminate in serious obstructive disease. If the symptoms of obstruction of the larynx appear, he then strongly recommends trypsin as a solvent of false membrane.

Of calomel, he says, the experience of many physicians justifies the belief that mercury, and especially calomel, employed within certain limits in the commencement of a pseudo-membranous inflammation does exert some controlling action on this disease. That it did much harm formerly when physicians prescribed it as freely as we now employ potassium chlorate, to the extent in many instances of increasing the cachexia and causing mercurialism, should not deter from its judicious use. In the ordinary form of diphtheria he would not advise the use of calomel, or would limit its employment to one or two doses of 6 to 10 grains in the commencement of the disease in robust cases. But in croup, since the danger is not from the cachexia or blood-poisoning so much as from the laryngeal stenosis, which is apt to develop rapidly, that medicine is indicated, and should be prescribed, which most strongly retards the exudative process, and aids in liquefying and removing the pseudo-membrane; provided that it produce no deleterious effect which renders its use inadmissible. Hence it is proper to prescribe calomel in larger doses and for a longer time in the treatment of croup than in other forms of membranous inflammation, if it fulfil the indication, as it seems to in a measure. In his own practice, however, calomel is not prescribed after the

first or second day, since Dr. Smith prefers the use of other remedial measures, which are efficient, and are less likely to produce injurious effects. The subject of surgical treatment is also fully discussed, and Dr. Smith holds that we can claim for tracheotomy judiciously performed, and at a sufficiently early stage, the cure of one in every three patients in the average.

ANTIPYRINE AND ITS EFFECTS.

At a meeting of the New York Academy of Medicine, held April 3, 1885, Dr. William H. Draper read a paper on antipyrine and its effects, beginning with the statement that while progress in science had added but little to our knowledge of the essential cause of fever, it continued from time to time to enlarge our resources for its treatment (*Medical Record*, April 11, 1885).

After referring to the derivation of antipyrine from coal-tar, to its physiological effects as demonstrated by experiments on animals, and to the fact that while the poisonous dose in the human subject had not been determined, single doses of 3 grains up to 5 years of age, and 30 grains in adults, should be given only when the patients were under constant observation, Dr. Draper gave a *résumé* of his experience in the treatment of twenty cases of typhoid fever in the New York Hospital.

The majority of these cases were severe, seventeen occurring in males and three in females. The ages ranged from 15 to 35 years. Five patients died and fifteen recovered. The ages of those who died ranged from 18 to 30 years, and death occurred from the fifteenth to the fifty-fifth day. The highest temperature in fatal cases was 107.6° F., on the twenty-fourth day of the disease. The average temperature of the fatal cases was 104° F., 102° F., 101.2° F., etc. In one of the fatal cases the temperature, under baths, remained at 104° F.; under antipyrine it fell to 101.2° F.

The highest temperature in the cases of recovery was 103° to 106.6° F.; the average from 100.6° F. to 103.6° F. Vomiting, in all the cases, was a frequent symptom in fifteen, diarrhœa was present in seven cases, constipation existed in eight cases, hemorrhage from the bowels occurred in two cases.

Antipyrine was given in maximum quantity of 75 grains, in three portions of 30- and 15-grain doses at intervals of one hour. The pretty uniform result was reduction of temperature within three or four hours by gradual defervescence, and the depression continued from four to nine hours, usually attaining its maximum again in twelve hours. The *pulse* followed, approximatively, the temperature. No marked depression of the heart's action was noted, and cleaning and moistening of the tongue was one of the most marked and uniform effects. In one case 75 grains of antipyrine reduced the temperature to 93° F., but the reduction was not accompanied by any other signs of collapse. Generally the drug quieted the delirium, cleared the intelligence, diminished the deafness, and allayed restlessness and subsultus. In six cases it caused an erythematous rash, which gave rise to but little irritation and faded in the course of a few days, even though the remedy was not discontinued. The urine presented no other changes than those which accompany parenchymatous nephritis. The experience in the treatment of these cases confirmed that which had been claimed by foreign observers, namely, that antipyrine can only be commended as a sure and apparently safe means of reducing high temperature. It seemed idle to the reader of the paper to speculate as to how antipyrine reduced high temperature. It was not an antipyretic in the sense in which quinine and the salicylates were antipyretics, which neutralized the causes of the fever. Antipyrine smothered, but did not exterminate; however, it affected favorably all the phenomena of fever.

Dr. Draper believed that the only safe conclusions which could be drawn concerning antipyrine were the following:

First.—It is an efficient means of reducing temperature.

Second.—It is apparently a safe means of reducing temperature if prudently administered and carefully watched.

Third.—While it has not, so far as present experience demonstrates, markedly modified the progress or aborted diseases in which it has been administered, it contributes to the comfort of those suffering from high fever.

Fourth.—The unpleasant effects in some cases are more than counterbalanced by its advantages.

Fifth.—Future experience and modifications in methods of administration may so modify its effects that it may prove to be a precious contribution to the art of healing.

In the discussion which followed the reading of Dr. Draper's paper, Dr. Leonard Weber stated that he had employed antipyrine in fifteen cases, including cases of pneu-

monia, bronchitis, scarlet fever, etc. In not a single one of the fifteen cases had he been disappointed in his desire to reduce the temperature. The first case was one of double pneumonia in a child, of severe type; the drug reduced the temperature from two to three degrees when administered either by the mouth or by the rectum. Resolution began to take place at the close of the fourth day of the disease. In another case he gave smaller doses more frequently repeated, and had no difficulty in keeping the temperature down to 101° or 102° F. He noticed a little nausea when the drug was administered in this manner. He thought it well to begin with relatively small doses, say 7 grains, by the mouth or rectum in children, and 15 grains in adults, before proceeding to give larger doses, as was at first proposed. The remedy acted quickly, and we should know within a short time after the administration of the first dose how the patient would bear it, and thus avoid producing too great and rapid lowering of the temperature.

Dr. H. J. Boldt had used antipyrine in the treatment of two cases of puerperal septicæmia and also two cases of pneumonia, without obtaining reduction of temperature. The special effects which he noticed, the drug being given in doses of 4 grammes, were increased frequency of pulse with diminished strength and intense prostration, the patient presenting the conditions seen in carbolic acid poisoning.

Dr. Kinnicutt had used antipyrine in his wards in St. Luke's Hospital, and in private practice, with quite similar results to those obtained and described by Dr. Draper. The list of cases embraced facial erysipelas with a high temperature curve, inflammatory rheumatism, pleurisy, pneumonia, scarlet fever, tuberculosis, typhoid fever, and a single case of intermittent fever. Gastric disturbance during its use had been exceptional in his experience, and in only one or two instances had he seen a chill occur. The latter symptom had been developed, as had been the experience with kairine, with a rising temperature following the minimum point reached. He had been particularly gratified with the certainty with which antipyrine controlled the usual afternoon or evening rise of temperature in phthisis. Its use had been believed to be contraindicated in this disease, on account of the sweating which often accompanied its employment. In his experience, this symptom had been quite as often absent as present in such cases, during the administration of the drug. The curious phenomenon of a subnormal temperature, one of collapse, without other unpleasant symptoms mentioned by Dr. Draper, had been observed by him in a single instance. Twenty grains of antipyrine had been given in a case of pneumonia on the sixth day, with a temperature of 104°. The temperature at the expiration of three hours had fallen to 95° (in the mouth). The pulse, however, had improved in quality and diminished in frequency, and the patient had expressed herself as feeling excellently well. He had adopted the plan mentioned by Dr. Weber, of giving moderate doses of antipyrine, repeated two or three times in the course of the twenty-four hours, in cases of pneumonia and scarlet fever in children. He had found that by this method the temperature could be maintained within reasonable and safe limits. His dosage in such cases was a decigramme to each year of the child's age.

Dr. George L. Peabody believed that the lack of effect apparent in many cases was probably due to the adulteration of antipyrine. He had used it in the treatment of almost all febrile diseases, and, until recently, had succeeded in reducing the temperature in every case. According to his experience, no harm was done in ordinary cases by the administration of the drug, if the desired effect was not produced. It could be given hypodermically without causing local irritation or general evil effects, and it was freely soluble in hot water, so that the quantity could be readily regulated.

At present, however, all that could be claimed was a symptomatic effect, but that was such as to make it worthy of further trial.

Dr. Malcolm McLean referred to a case of chronic pyæmia following puerperal septicæmia, in which the cold bath, the cold coil, the salicylates, quinine, etc., were used thoroughly by Dr. Cox and himself, without affecting appreciably the temperature, which ranged between 103° and 104° F. After forty days' experience in the use of the above means, they resolved to try antipyrine, 60 grains daily, and the reduction of temperature to 100° and 101° F. was prompt and permanent during two weeks.

THE TREATMENT OF HOARSENESS AND LOSS OF VOICE.

At a meeting of the Buffalo Medical and Surgical Association, held April 7, 1885, Dr. F. W. Hinkle read a paper with the above title (*N. Y. Medical Journal*, April 18, 1885). These symptoms, he said, were the only ones almost invariably present in laryngeal affections, and when present they always pointed

to some involvement of the larynx. Of themselves they threw very little light upon the pathological conditions, but were danger-signals warning us to properly investigate the larynx to ascertain the reasons for their being. This rendered a familiarity with the use of the laryngoscope necessary. Every physician should know how to use this instrument for purposes of diagnosis, even if he did not wish to treat this class of cases. Hoarseness and loss of voice occurred frequently in this climate, and were produced by any direct or indirect impairment of the functional integrity of the vocal bands. Anything which caused inability of the bands to vibrate with sufficient rapidity to produce sonorous vibrations of the air would cause aphonia. The causes of voice-impairment varied from slight and temporary congestions to tubercular and malignant ulcerations, with all their attendant horrors.

Among the frequent causes of these symptoms might be mentioned subacute congestion of the laryngeal mucous membrane, and this, if increased in degree, becomes an acute laryngitis. The vocal bands, red, swollen, and irregular, were stiff with exuded serum and cell-infiltration. The surrounding tissues were also swollen and distended. The voice was reduced to a whisper. There was fever, with general constitutional disturbance. In children a spasmodic element was often added, especially at night. In debilitated persons, and those suffering from blood-poisoning, œdema of the larynx might result, which was frequently fatal. A chronic laryngitis might proceed from an acute attack, or the disease might have a sluggish type from the outset. It was very important to give attention to the "dregs" of an acute attack, and assist the tissues to regain their lost tone, lest the seeds of the chronic forms should be left. The latter was also marked by congestion and infiltration, but the color was not so deep, and the infiltration tended more to the formation of connective-tissue elements. The voice-impairment was about the same in this form, but the bands were relaxed rather than stiffened, and thickened rather than swollen. Chronic laryngitis did not tend to recovery, and, if neglected, might lay the foundation for structural changes in the tracheal and bronchial mucous membranes. These lesions might be grave, and among them were to be mentioned catarrhal pneumonia, and pulmonary and laryngeal phthisis.

Dr. Hinkle then devoted some time to the consideration of laryngeal phthisis. Without entering into a discussion of the causes of tubercle, he stated that in its first stages laryngeal phthisis was indistinguishable from simple catarrhal laryngitis, or, in other words, a primary simple laryngitis might, under certain local and constitutional conditions, terminate in phthisis of the larynx. Then followed the stage of pallor of the mucous membrane of the larynx and pharynx, and thickening and œdema of the arytæno-epiglottic folds. This appearance of the folds was pathognomonic of laryngeal phthisis, though sometimes it was so imperfectly developed as not to be easily recognized. In this stage the disease was often curable, and hence the importance of an early recognition. The only marked symptom might be a slight hoarseness, and a laryngoscopic examination was necessary to distinguish the disease. Then followed the stage of ulceration, with the attendant dysphagia and often dyspnœa. Cases were rare that had reached the stage that admitted of nothing more than merely palliative therapeutics before they had been recognized,—a result which would often be avoided by proper means of examination.

The subject of new growths was then presented as being causative of impairment of the voice. The treatment of these conditions was among the triumphs of laryngology. New growths in the larynx, as elsewhere, were divided into the benign and the malignant, the benign, fortunately, being the more frequent. The latter were generally the result of previous inflammatory action. Dr. Hinkle believed he had sometimes witnessed the inception of benign new growths which had been aborted by the use of astringent and alterative applications. Aphonia and dysphonia were the most frequent symptoms. Dysphagia might occur when the growth was on the epiglottis. There was often no symptom except some slight voice-impairment similar to that occurring in chronic laryngitis. The laryngoscope alone could establish the diagnosis. The most frequent of the new growths were papillomata, which were unusually sessile, often multiple. They occurred in any part of the larynx, but were most common upon the vocal and ventricular bands. The other forms of benign growths were fibromata, usually pedunculated, angiomata, and myxomata. The last two were of rare occurrence. The malignant growths in their early stages were with difficulty diagnosticated from the benign growths. Epithelioma was the most common form of cancer, but sarcoma also occurred. Extirpation offered little or no hope, and the prognosis was of a lingering

and horrible death. Hoarseness and loss of voice might be due also to a paralysis of one or more of the muscles which produce the various movements of the larynx. It might be either of central or of peripheral origin. Central paralysis was rare, and was accompanied by paralysis of other muscles and by other general symptoms. Peripheral paralysis might be due either to pressure or to inflammatory action. The first form was rare, except that due to pressure upon the recurrent laryngeal nerve. This might be caused by aneurism, enlarged cervical glands, or even induration of the apices of the lungs.

The appearances produced by complete paralysis of this nerve were diagnostic and striking. The vocal bands hung midway between abduction and adduction, in the so-called cadaveric position. The power of phonation was lost, and coughing, sneezing, and clearing the throat were altered in character. Partial affections of this nerve would give rise to paralysis either of abduction or of adduction, according to the filaments affected. Paralysis of the abductors was rare, though of great interest, but did not immediately affect phonation.

Bilateral paralysis of the abductors, on the other hand, was more frequent. This might be hysterical in origin, though chronic laryngitis, previous nasal catarrh, lead-poisoning, and the later stages of pulmonary phthisis had a causative relation to it. The voice was entirely lost, and during whispered speech there was shortness of breath, due to the waste of expired air through the wide-open glottis. Unilateral paralysis was usually the result of inflammation, either simple or specific. The voice was either hoarse, husky, or entirely lost. The arytænoideus might be alone affected, thus preventing the arytenoids being drawn together, and through the opening thus left the air escaped, preventing sufficient vibration of the ligamentous portions to produce sound. Lastly, the tensor muscles might be affected. The paralysis of the thyro-cricoid and thyro-arytenoid might be either bilateral or unilateral. The voice was gruff, monotonous, or suppressed. The thyro-arytenoid was often affected by inflammation of the mucous membrane of the larynx, on account of its superficial situation. As a result, there was a lack of tone about the vocal bands, and their approximation was imperfect. All these appearances, of course, were varied in partial or complicated paralytic conditions.

The treatment of hoarseness and loss of voice was the treatment of the causative diseases. The general principles of the treatment of inflamed mucous membranes were the same in the case of the larynx as in that of other parts. Their application varied with the conditions and the conveniences at hand. In acute inflammations, heat, moisture, and sedation in the form of steam inhalations, external compresses, etc., were of service. As the acute stage passed off, astringent stimulants, in the form of sprays, lozenges, and occasionally powders, were to be used. Chronic inflammations required stimulation from the first. The brush was occasionally of service for local applications. Stimulant sprays gave the best results. Galvanism externally, over the thyroid, was of benefit. Perverted conditions of the nose and pharynx would imperatively demand attention. Accurate localization of remedies and patience were the two prime factors of success.

New growths, when benignant, almost invariably demanded removal. This was best done by the forceps, the snare, or the cautery applied intra-laryngeally. When they were malignant, extirpation of the larynx was to be thought of, but palliation was usually all that remained to be done. In paralytic conditions, applications of the faradaic current, one pole over the thyroid and the other upon or near the affected muscle, usually gave good results. Inflammatory conditions must first be removed by topical applications. Whatever the remedies chosen, or the method of application adopted in a given case, the result would depend largely upon the accuracy of the diagnosis, and the care with which the remedy was applied to the exact seat of disease.

A CHEMICAL REAGENT FOR CANCER.

Although a diagnosis of cancer based upon microscopic evidence must ordinarily be accepted as infallible, additional and equally unerring diagnostic testimony would, of course, be very welcome. The value of a true chemical reagent for cancer, such as discovered by ERNST FREUND, of Vienna (vide *Wien. Allg. Med. Zeit.; Pharm. Post*, February 21, 1885), would evidently be enhanced in cases in which the microscopic diagnosis is apparently contradicted by an unusually favorable state of health. Having been successfully exhibited in seventy carcinomatous patients and thirty test individuals (affected with sarcoma, fibroma, lipoma, and syphilis), Freund's reaction seems justly entitled to our regard, and alongside of

microscopic inspection will surely suffice to establish a certain diagnosis in every doubtful case. Freund takes about one drachm of blood, dilutes it with water, and decants it after some time, and, after adding a few drops of a solution of chloride of iron and acetate of soda (to precipitate albuminates), he warms the liquid, neutralizes it exactly in a solution of caustic potassium, and filters. The addition of Fehling's solution in a small quantity produces, on the application of heat, a yellowish precipitate. The presence of a reducing agent (sugar) is thus proven. If this reaction does not take place immediately, glycogen is to be searched for by adding dilute muriatic acid, warming the mixture after a little while, neutralizing it again, and adding Fehling's solution, which process changes glycogen into sugar. Freund refers the reduction of Fehling's solution to the presence of sugar in the blood, which in the urine, of course, could not be found in an abnormal quantity. The blood of sarcomatous patients subjected to the same chemical treatment will, according to our author, after precipitation of albuminates, invariably show the presence of peptone (test with acetic acid and yellow prussiate of potash, or the biuret test), but will be found free from sugar or glycogen, while the blood of carcinomatous patients is positively free from peptone. The exclusion of diabetes in carcinoma and leucæmia in sarcoma is, of course, a necessity. The *Wiener Allgemeine Medizinische Zeitung*, an organ of acknowledged trustworthiness, states that an eminent surgeon of Vienna refused to operate on a patient in whom a famous physician had diagnosticated carcinoma, on the ground that Freund, after chemical examination of the blood, diagnosticated lues and not carcinoma. The patient having consequently been put on a specific treatment (inunction-cure) without being benefited, was again presented to the surgeon for an operation. The surgeon refused again, as Freund's test proved the absence of carcinoma. The patient was again treated for syphilis, and was cured.

Reviews.

CONSUMPTION: ITS NATURE, CAUSES, PREVENTION, AND CURE. By J. M. W. Kitchen, M.D. New York: G. P. Putnam's Sons, 1885.

Among the many religions of the past and present, and the many speculations concerning the religion of the future, perchance a hint of Dr. Kitchen in his modest little work about the "Worship of Tubercle" may bear fruit, and as the ignorant savage deifies what he dreads, so the enlightened futurist may in coming ages worship the scourge which bids fair to flourish through our day and descend to our children's children. Will the religions of some distant day adore the name of Koch as a prophet-teacher? will pathological specimens form their sacred relics, and on their temple walls will they portray tubercular cavities and consolidated lungs? will the cuspidor be to them a sacred emblem? and will they indeed cultivate bacilli in their temples as the ancient Egyptians did cats and crocodiles?

But apart from fanciful speculation, we search the pages of Dr. Kitchen in vain in effort to add to our real knowledge,—though a grotesque idea is occasionally met. What deep irony lies, for example, in the author's suggestion that to avoid tubercle both the individual and his ancestors should live correctly! How the consumptive as he reads will glare at his family portraits, and rend in rage the memoirs of his illustrious forefathers! But in vain; they sleep soundly, and have left their descendants legacies not mentioned in will or codicil.

Here and there a beautiful thought will cheer the reader. He is told to "consider himself the analogue of the tea-rose," most fragrant of roses, now how rare; but not in rarity or perfume, but because, unlike the flower, he is neither able to endure out-door exposure, nor yet to survive the artificial heat of the conservatory. How apt the analogy to one who has shivered even in the brilliant sunshine of a Northern winter, and pined and wasted, pent in-doors in our artificial heat!

In our search for facts we learn that the two great "functions of humanity are pregnancy and self-preservation," and that the bacilli of Koch *may* be *one* cause of consumption, but that the mind is equally potent in producing it, and this, we may observe, accounts for the tuberculosis of precocious children. They abound in mind. They are infected with thought; they die. Yet this explanation has never been given before. One dreads lest its author should be infected in the act of originating it and prematurely perish. Work, the author positively states, is the greatest remedy for consumption; but this is rank homœopathy, since overwork is often the cause. The poor, he tells us, while wanting many comforts and protections, still are to be congratulated on possessing plenty of the great antidote.

There is nothing superficial in the plan

proposed for the prevention of phthisis; it must be early begun, in utero at least. Even if we have delayed prompt measures till then; even if we have failed in making our ancestors live correct lives, we may begin in utero. Yet the phthisical should not be allowed to reproduce their kind. So that, as phthisis comes from inheritance, and the phthisical are not to reproduce their kind, the treatment in utero becomes one of those easy tasks which, if well salaried, may yet make the physician of the future the envy of even the government employé.

The author's estimate of the relative value of different climates possesses some value, since he states that he is personally acquainted with health-resorts. Most Southern towns he considers unfortunate in location and surroundings. The pine woodlands of Southern Georgia seem to him the best for winter, being high and warm. Aiken is subject to cold storms. Florida is most accessible to New York, but all Eastern Florida is damp and changeable. In Colorado "patients usually die of the disease if they stay long enough;" it is good for a short visit, especially in summer. Of all localities for six winter months, Bermuda is best; too boisterous for delicate invalids, the rough voyage is the greatest objection. The book also has chapters devoted to food, exercise, medication, and heredity and its relations. "How often," asks the author, "is a physical examination made before marriage by an expert?" and without waiting for echo he answers, "Never!"

THE DIAPHRAGM AND ITS FUNCTIONS CONSIDERED SPECIALLY IN ITS RELATIONS TO RESPIRATION AND THE PRODUCTION OF VOICE. By J. M. W. Kitchen, M.D. Albany: Edgar S. Werner, 1885.

This little book was the successful competitor for the prize offered by "*The Voice.*" The author considers the functions of the diaphragm under three main heads: under the anatomical division of the subject the location, general shape and origin, minute anatomy, blood, lymphatic, and nervous supply of the diaphragm are considered, together with its embryology and history of development, and its anatomy in a few inferior species of animals. As regards the physiological functions of the diaphragm, it is considered as an organ of respiration, under which heading its movements, the different varieties of respiration, the action of the other respiratory muscles, and the differences in male and female breathing are dealt with; while the relation of the circulation to the action of the diaphragm, and the comparative physiology and functional development of the organ, receive also brief notice. Under the heading of the hygiene of the diaphragm are considered the diseased conditions to which the diaphragm is subject; the conditions necessary to its nurture and healthy action; corset and waist constriction; special exercise of the diaphragm; how to breathe, etc. In the contents of this section we especially find the *raison d'être* of this essay, which may be best stated in a few words by the following quotation from the author:

"The possession of a highly developed diaphragm is a principal feature in the highly organized animal. Its possession gives to man great respiratory and vocal facilities, which would be lost with the abolition of the organ. A millennial period will come, but before its advent the corset must go."

In other words, Dr. Kitchen preaches a crusade against the corset, but the good advice he gives his readers, to our minds, largely loses in force by his habit of exaggerated and careless statement, while his cause, we imagine, will not be advanced in the minds of his lay readers by his representation of his ideal uncorseted female form.

AN ILLUSTRATED SYNOPSIS OF NORMAL HISTOLOGY, ADAPTED TO THE COURSE OF PRACTICAL INSTRUCTION IN THE UNIVERSITY OF PENNSYLVANIA. By George A. Piersol, M.D., Demonstrator of Normal Histology.

Philadelphia: P. Blakiston, Son & Co., 1885.

This book consists of forty plates, most of which contain a large number of figures, representing almost completely the normal histology of the human body, with descriptive text. The plates themselves are all photographic reproductions, some of them from drawings made by the accomplished author, and many of them photographs from specimens by the same hand. The drawings are exceedingly well done, some of them, of course, more or less diagrammatic, but many of them the close reproductions of nature. Sixteen plates are micro-photographs, and form the most remarkable part of the volume. They represent almost every degree of amplification, from a few up to 1700 diameters, and are very remarkable for their clearness and for the fact that they really convey an idea of the sections which were originally under the microscope. It is plain that Dr. Piersol is an extremely accomplished histologist, and we are sure that the class in the University must receive very valuable instruction from him. It was in response to the

requests of the University class that the volume was published, and we are sure that if it be offered at a proper price it will meet with a wide sale in all the medical colleges in which practical histology forms an integral portion of the medical teaching.

KIRK'S HANDBOOK OF PHYSIOLOGY. Edited by Mr. Morrant Baker, F.R.S., and Vincent Dormer Harris, M.D. Vol. i.
New York: William Wood & Co., 1885.

When a book reaches its eleventh edition no further recommendation can be required for it, and although Kirk's Physiology, as shown by the fact of having passed through nearly a dozen editions, has been extremely popular with students, the eleventh edition, which has just appeared, is a very great advance over all its predecessors. One of the shortcomings of the earlier editions was the almost entire absence of illustration, a fault which in the present edition has been admirably remedied. In the first volume, which alone has appeared, we have nearly five hundred illustrations, and although they are nearly all familiar to us as the standard illustrations of nearly every text-book of histology and physiology, the editors have, nevertheless, used great judgment and care in their selection, while their manner of reproduction, as a rule, leaves little to be desired. On carefully looking through this last edition of Kirk's Physiology, which is, however, really Kirk's, it seems to us, only through the courtesy of the editors, we can find scarcely anything to criticise. It seems thoroughly up to the time, and while moot points in physiology have not been entirely omitted, they are stated in such a way as to render them easily comprehensible to the youngest student of medicine.

We notice that this edition differs from the earlier in that the account of the chemical constitution of the animal body has been omitted, and although in the earlier numbers the account given of this important subject was so scanty as to be of little service, we trust in the volume which is to follow this will not be neglected.

LES NOUVEAUX REMÈDES. A Bi-monthly Journal of Medical Chemistry, Pharmacology, Therapeutics, and Hydrology. Edited by MM. Bardet and Delpech, with the assistance of MM. Egasse and Portes.
Paris: Rue J. J. Rousseau, 41.

Every one recognizes the transformation which is now going on in therapeutics, and, as a consequence, in pharmacology,—a transformation which is largely due to the introduction of new remedial agents as well as a closer study of the old. The flora of America, Africa, and Oceanica contains innumerable plants which are, and have long been, used by natives in the treatment of disease, many of which, though almost entirely unknown to us, must contain marked therapeutic principles. The policy constantly followed by the THERAPEUTIC GAZETTE has been to encourage the study of these unknown drugs, and we hail with satisfaction the entrance of another journal in the same field of inquiry.

In its prospectus *Les Nouveaux Remèdes* promises to furnish its readers with all accessible information as to the indications for the therapeutic use of newly-discovered plants and new products, as well as for new uses of old remedies, together with all known facts as to their composition, chemical constitution, characters and reactions, doses, mode of administration, and physiological and therapeutic properties, as well as notes on medical and pharmaceutical chemistry, analyses of mineral waters, foods, etc.

We wish our new associates the greatest success in their enterprise, particularly as they promise to avoid all notice of specific pharmaceutical specialties, which have done so much to retard the progress of scientific pharmacology. Judging by the first issue, *Les Nouveaux Remèdes* cannot fail to be a valuable addition to medical literature.

REVUE SCIENTIFIQUE.

The following is a summary of the table of contents of the *Revue Scientifique* for April:

April 4, 1885:

Geography.—Corea. M. Simonin.

Physiology.—The Normal Temperature of Man. M. Ch. Richet.

Astronomy.—The Eclipses of the Satellite of Jupiter. M. Obrecht.

Scientific Miscellany. — Sylviculture. M. Reuss.

Book Notices.—Annals of the Observatory at Rio Janeiro; Mathematics applied to the Fine Arts (Le Natur); Science and Military Art (Hennebert); Course in Mechanics (Despeyrous).

Proceedings of the Academy of Sciences of Paris.

Correspondence and New Inventions.

April 11, 1885:

Physiology. — Cerebral Localization. M. Vulpian.

Geography.—Two Years at the Lakes of Central Africa. M. V. Giraud.

Miscellany.—The Calendars of Different Nations. M. Barré.

Terrestrial Physics.—Water-Spouts in the Indian Ocean. M. G. Mouneyrès.

Book Notices.—Matter and Modern Physics (Stallo); The Origin of the Moon (Faye).

Proceedings of the Academy of Sciences of Paris.

Correspondence and New Inventions.

April 18, 1885:

Astronomy.—The Universe and the Classification of Moons. M. Faye.

Chemistry.—Colloid Substances and Coagulation. M. E. Guinaux.

Zoology.—The Development of the Skeleton of the Extremities in Mammals. M. E. Retterer.

Book Notices.—The Diseases of the Individual (Ribot); Elements of Surgical Pathology (Terrier); Physiology of the Embryo (Preyer).

Proceedings of the Academy of Sciences of Paris.

Correspondence and New Inventions.

Correspondence.

MEDICAL ADVERTISING.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—In the issues of *The Medical News* for March 21 and March 28 interesting editorials may be found on the subject of medical advertising. In the former issue this journal denounces the practice in which some of our prominent physicians indulge, who, when treating some distinguished personage, give all the details of the condition and disease of their patient to representatives of the secular press; details which at one time were considered violations of professional propriety, and which are only properly understood by professional men. In the latter issue a novel method of advertising is related, where an inventor of an electric osteotome kindly invites a reporter of the New York *Tribune* to witness an operation with his new osteotome, and the newspaper man is furnished with an accurate description of the instrument as well as the operation by the inventor. The editor of *The Medical News* very properly predicts that we may look for more extensive medical advertising in the future, as no one will be permitted to enjoy a monopoly in this kind of newspaper notoriety. But advertising already is carried on extensively by many physicians. Daily we see physicians violate our code of ethics and endorse proprietary and patent medicines, and attest to the medicinal virtues of preparations of which they do not know anything. Why? Simply to have their names appear in circulars and pamphlets, and to tell the world that they are "professors" at some medical college, fellows of different medical societies, corresponding members of other societies, consulting physicians and surgeons to half a dozen different hospitals, etc., etc., etc. Professor A. takes pleasure in stating that, after a careful and thorough trial, he considers "listerine" the best deodorizer and disinfectant the professor is acquainted with; Professor B. attests to the sticking qualities of "bandoline," and Professor C. pronounces "Mule-Ear" chewing tobacco the best. Now I think this last endorsement the most sensible, for the professor may be a judge of good chewing tobacco, a connoisseur as it were, and know what he is talking about, but the other two professors evidently extol the virtues of remedies of the composition of which they are totally in ignorance. For the sake of illustration, I refer in the above to *listerine*. Dr. George M. Sternberg, member of the committee on disinfectants of the American Public Health Association, gives in *The Medical News* of February 7 an interesting account of commercial disinfectants, carefully tested under his direction by Dr. Duggan. In these experiments it is clearly proven that *listerine* in the proportion of fifty per cent. failed to disinfect. In other words, when equal parts of *listerine* and a fluid containing disease-germs are brought together for two hours, the *listerine* not only fails to destroy those low organisms, but fails even to arrest the rapid multiplications of the same. And how many eminent professors have declared *listerine* a safe and efficient disinfectant! I consider this form of advertising the most injurious, as many physicians, to the detriment of their patients, are induced to give these worthless preparations a trial on account of the many endorsements they receive from physicians in good standing. Several times a year circulars are sent broadcast over the country by most of our medical colleges, stating with painful minuteness that Professor A., who lives on such and such a street, and whose office hours are at convenient times, will teach anatomy; that Professor B., equally eminent, learned, and gifted, will teach physiology; Professor C., surgery, etc. Is it not reasonable that those different branches are taught in medical colleges? Are such announcements in circulars and pamphlets not absolutely superfluous and absurd, and are they anything else but ad-

vertisements? It is high time that this farce should be stopped, and that the professors learn to recognize the fact that they have no more right to advertise themselves than their humble brothers, the common practitioners. Either discontinue advertising altogether, or advertise *ad libitum et ad infinitum.*

H. H. VINKE, M.D.

ST. CHARLES, MO.

SOME THERAPEUTIC USES OF EUCALYPTUS GLOBULUS AND JABORANDI.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—While it is well to formulate therories concerning those things of which we have no positive knowledge or conclusive evidence, and exert our minds in the collection of facts to substantiate those theories, it is also of great benefit to have presented to our minds and for our profit facts or truths, and there is no department giving greater opportunities or benefits than that of therapeutics. There is no physician devoted to his work as he should be, with a spirit of investigation and an observant mind, but may develop facts that are of great worth, and if fully carried out may prove to be grand truths and invaluable aids.

All true physicians feel the need of greater light to aid them in their efforts to relieve suffering humanity.

Much could be done by reporting to each other our success in the use of various therapeutic agents, not only the new, but the old ones, of which we still know so little, and of which the half has not yet been told.

The progressive physician of to-day wants to know for what he is giving medicine, what agent to give for a certain condition, and what remedial influence to expect from the agent when administered.

Reports should be brief but explicit; not occupying space in detailing symptoms that are given in the text-books and with which it is supposed every physician is familiar, but the condition should be briefly described and the treatment detailed, stating how the drug was prepared, what dose was used, and how often given. What may be old and familiar to one may be new and useful to some one else. With a hope of seeing a revival of this work, which formerly occupied more space in the GAZETTE than at present, I give my experience in a certain class of cases with *eucalyptus* and *jaborandi.*

Eucalyptus Globulus.—During the past five years I have made extensive use of a hot infusion of eucalyptus leaves in many and varied forms of disease, because of its efficiency and pleasant and agreeable form of administration, but I desire to call attention specially to two conditions in which I have had very gratifying success.

In *bronchitis*, where the cough is almost constant, with a free watery, frothy expectoration, I have employed a hot infusion (made without boiling) in doses of 1 to 2 teaspoonfuls every 15 to 60 minutes combined with inhalation of the fumes of the hot decoction. Also in aphthous ulcers in the mouth and throat of children, 1 teaspoonful of this infusion may be given every 15 to 60 minutes; the pleasant taste, which may be improved by slightly sweetening, is greatly in its favor in cases of children, who take it readily as often as desired.

Jaborandi.—My knowledge of the action of this agent led me to try it in *whooping-cough* during the past summer.

My prescription consisted of jaborandi and simple syrup, varying to suit age, etc., from 1 to 10 drops of fl. ext. jab. to teaspoonful of syrup, given every 15 minutes to 3 hours, as cough required. In most cases this treatment in a short time gave entire relief.

A. S. HUSTON, M.D.

PENDLETON, IND.

Notes and Queries.

VACCINATION OF RABBITS WITH CULTURES OF THE COMMA-BACILLUS.

DR. ERMENGEN read an interesting essay on this subject before the Academy of Medicine of Brussels (*Semaine Médicale*, Dec. 27, 1884). Several direct injections of a few drops of a culture resulted in causing diarrhœa, attended by a discharge of comma-bacilli, with ultimate death under symptoms of algor. The post-mortem examination revealed a healthy peritoneum, inflammation and acute catarrh in the small intestines.

Vaccination of other curved micrococci found in the intestines and in the fæces gave negative results, which was also the case with the vaccination of other putrid or fæcal substances.

BRONCHIAL ASTHMA IN CHILDREN.

The deleterious effects of a rapid change of the bodily temperature are so decided, that it is really surprising that the abuse of ice-water or of baths in summer does not frequently lead to directly fatal results. The *Deutsche*

Medizinal Zeitung of February 9, 1885, reports the case of a girl of 10 years of age, who took a cold bath while in a very heated condition. The result was an intense asthmatic paroxysm, threatening actually her life. Medical aid could fortunately be speedily summoned, and chloral exhibited.

VACCINATION AGAINST CHOLERA.

DR. FERMAN and his assistant, DR. PAULI, two Spanish physicians of the highest standing, and undoubted authorities on practical microbiology, surprised the meeting of the Academia Médico Quirurgica of last December by the following telegraphic message: "New observations of morphological changes of the bacillus choleræ. Solution of the problem of successfully vaccinating animals. Man tolerates bacillus-vaccination, as proven by experiments on ourselves." A similar telegram was sent to Professor Letamendi, and next day, as the *El Siglo Medico* (December 14, 1884, Madrid) states, the secular press brought detailed accounts of this apparently very important discovery. The truth of the self-vaccination and the authority of the observers being apparently unquestionable, it would actually appear as if a new and powerful weapon —*i.e.*, prophylactic vaccination—had at last been found against the choleraic scourge. It is, of course, not yet warrantable to indulge in sanguine anticipations before some more definite and conclusive data are in our possession.

LEAD-POISONING IN INFANTS.

DR. J. LÖWY reports three cases of lead-poisoning occurring in infants which deserve to be widely promulgated, especially among the laity, to avoid the causes leading to the intoxication.

1. A child of 5 weeks of age, nourished by a wet-nurse, was suddenly seized with violent colicky paroxysms, accompanied by a bluish-livid color of the skin. The cause was found to be the lead-containing face-powder of the child's nurse.

2. Another infant of the same age showed similar symptoms, which were traced to the use of lotions of Goulard's extract by its nurse, which she applied to her sore breast, without cleaning the latter thoroughly before nursing her child.

3. An infant of 3 months of age was taken suddenly ill with distinct symptoms of lead-poisoning. An examination revealed that the nursing bottle used by the infant contained a lead-cork, and that on account of a rupture in the rubber tube passing through this metal cork the lead came in direct contact with the milk.—*Wiener Medizinische Presse*, XXIV. 49.

ON THE PROPHYLAXIS OF TUBERCULOSIS IN CHILDREN.

The prophylaxis of tuberculosis ought to be begun early, and consists in suppressing the disposition to various ailments and in preventing infection itself. The first task is executed by general strengthening and rational hardening of the body and appropriate wearing-apparel. The second part of the prophylaxis has to consider the tuberculosis of inhalation, infection by food or mechanical transmission, and, finally, the emanation in the body itself from a previously isolated focus. Inhalation of the tubercle-virus (bacilli) is the most frequent mode of transmitting the disease in children. Hence children with an apparent disposition toward tuberculosis ought to be allowed as little intercourse as possible with tubercular persons. The latter ought to be made to understand the danger resulting for the children by their kissing them or sleeping in the same bed with them. Milk ought to be drunk only when cooked. The subject of mechanical transmission by secretions of tubercles is still very obscure.—*Jahrb. f. Kinderhkde.*, XXI.

PRESERVATION OF FOOD BY "PETREOLINE."

Petroleum, in one of its many forms, has already been widely used in the arts and manufactures, but few persons would have thought that it could be utilized as a food preservative. A patent has, however, been obtained in this country, on behalf of a French "Société Anonyme de Conservation Aliamentaire" for the preparation of a soft paraffin wax called "petreoline," and its use as a preservative of food, oil, and other organic matter. When the light products of crude petroleum have been distilled, and the tar obtained has been disinfected or rendered inodorous, a portion of the latter is mixed with about six parts of pulverized animal charcoal. These materials, after exposure for about twenty-four hours to an elevated temperature of, say, about 50° C. (122° F.), are introduced into a suitable apparatus and washed with boiling ether, which dissolves the "petreoline," and is collected with the latter in

a suitable vessel or receiver, being subsequently recovered by distillation. The product remaining at the bottom of the distilling apparatus simply requires warming in an open vessel, in order to remove all traces of ether, and it constitutes the "petreoline" for the purpose of this invention. "Petreoline" may be employed for preserving cooked meat or dried fruits, and also for the preservation of edible and other oils and fats, which simply require to be mixed with the "petreoline" in order to insure their preservation.—*Oil and Colorman's Journal.*

TOXIC ACTION OF IODOFORM.

Cases of delirium and delusions produced through the administration of iodoform are sufficiently rare to make the following case, reported by DR. ROBERT BLACK in the *British Medical Journal*, January 10, 1885, of interest:

M. T., a healthy young man, was admitted into the Sussex County Hospital, under the care of Mr. Humphry, on October 17, 1883. He had an ordinary hydrocele of the tunica vaginalis, which had been injected with iodine without success. The fluid was drawn off, and some powdered iodoform was blown into the sac through the canula. This was followed by suppuration of the whole sac, and considerable constitutional disturbance; and the patient began to have delusions, dressing himself in strange costumes, and imagining he was of prodigious height, and growing rapidly. His ideas were all of an exalted character; he imagined he had the best tenor voice in the world, and proceeded to hire a large concert hall in his native town, to give a concert. He left the hospital, and was consigned to an asylum; but, four months afterwards, was discharged perfectly well, and returned to his work as a schoolmaster. The cure of the hydrocele was a very complete one.

Dr. Black also states that he remembers a case at the London Hospital, in which the application of powdered iodoform to some extensive ulcers of the leg was followed by severe constitutional disturbance, with delusions of a similar character.

CEDRON-SEED.

The tree furnishing this seed is indigenous to New Granada and Central America. Hagar states that the *Simaba ferruginea* (St. Hil.), a native of Brazil, also yields the seed. *Simaba Cedron*, Planch. Nat. Ord., *Simarubaceæ*. Syn., French, Cedron; German, *Simabasemen, Cedronbohne, Cedronsamen.*

The Simaba cedron does not exceed a height of six metres, with a trunk of from fifteen to twenty-five centimetres in diameter. The glabrous leaves, sixty centimetres and more long, composed of twenty and more leaflets, oftener alternate than opposite; leaflets sessile, ten to fifteen centimetres long, acuminate, oblique, or unequal at the base, penninerved. The common or general petiole is cylindrical, terminated by an uneven leaflet. Clusters of sixty and more centimetres in length are close together, ramose, covered with a short down, reddish and velvety. With a small calyx in shape of a cup, obtusely five-toothed, the corolla is composed of six linear, spread-out petals, of a pale and cottony brown externally. The very voluminous fruit, solitary through the abortion of the other carpels, is a drupe of oval form, obliquely imperfect at the top. The fleshy part of the fruit, which appears not to have been very soft, surrounds a horny endocarp. The seed is sole, voluminous, dangling, covered with a membranous tegument, while the cotyledons are very large, fleshy, and white in the recent state. It is those isolated cotyledons which constitute the article of commerce, and which are from three to four centimetres long, fifteen to twenty millimetres broad, of an elliptic form, curved a little on one side, convex externally, flat or very slightly concave on the internal surface, with a small seam at the top. By drying they have turned into a yellow color, often rather dirty and blackish-looking externally, and lighter yellow internally. Without any particular odor, they are possessed of a very bitter taste, reminding one of quassia, and contain through their whole substance a large amount of starch, from thirty-three to thirty-six per cent.,—eight per cent. of a solid fat, scarcely soluble in alcohol, thirty-two to thirty-five per cent. of albuminous matter, about ten per cent. of a soft resin, eight to ten per cent. gum, and two to three per cent. of a crystallizable, very bitter substance, which has been named cedrin by Levy, who discovered it as long ago as 1851.

Medical Properties and Uses.—The seeds are prescribed by the physicians of New Granada as a fever medicine, and are also used internally and externally as an antidote for the bite of poisonous animals. The natives of New Granada and Central America never venture into the forests unless supplied with a

few of the seeds, which are cut into thin, transverse sections, and these are applied to the wounds. Fever patients cut the seeds into pieces the size of a pea, which they swallow gradually, principally during the apyrexia. Cedron is stated to have been used successfully when quinine and arsenic failed to cure, and it is also employed in diarrhœa and colic. Being so very bitter, it has been recommended to administer the drug in pill-form, made from the dried extract, one hundred grains of the seed yielding thirty to thirty-three grains of the watery, and a little more than half that quantity of the alcoholic, extract. Cedron is also highly esteemed for the prevention of hydrophobia, in spasm of the stomach and bowels, and dyspeptic affections. Although the usual dose in Central America is 1 or 2 grains, Dr. Purple, of New York, who extensively employed the drug thirty years ago, pronounces the doses mentioned too small, and that from any ordinary quantity no fear of injurious consequences need be entertained. He gave from 10 to 30 grains of the seeds every four hours, and found that though in very large doses they may produce griping and diarrhœa, these effects are easily controlled. He has come to the following conclusions regarding their therapeutic action :

That cedron possesses decided antiperiodic properties, and is, therefore, applicable in the treatment of periodic diseases.

That it is less likely than quinine to produce the aggregate of encephalic or neuropathic phenomena induced by overdoses.

That it may, in large doses, repeated often, produce griping of the bowels and even diarrhœa ; but that these conditions are easily controlled by appropriate medicaments.

That as a remedy in intermittent fever it possesses properties in many respects equal to quinine, and in most cases is equally adapted to the treatment of this disease.

That in the treatment of yellow fever it does not appear to possess any particular advantages over quinine, but, nevertheless, is equally well adapted to fulfil the indications which call for the use of this latter remedy.

That it possesses marked tonic properties, and deserves a prominent place in this classification of the materia medica.

That in chronic dysentery, diarrhœa, dyspepsia, and all diseases of the stomach accompanied with impaired or difficult digestion, its use will be found to be attended with benefit.

Dr. Guier, of Costa Rica, has seen cedron successful in curing the bite of a poisonous serpent, and has used it effectually in cholera morbus, colic, and neuralgia of the face ; while in the hands of Dr. Thompson, of London, it has proved efficient in the treatment of gout. M. Heran states that he has employed the remedy in eight cases of poisoning, and that his mode of using it was to administer 5 or 6 grains with a spoonful of brandy, and to dress the bite with the tincture, and that he had rarely occasion to repeat the dose to effect a cure.

In a note on cedron-seed from the United States Consulate, Livingston, Mr. James Frederick Sarg says, "The cedron is highly prized here, nobody going without a seed, which is used against ague and fever, poisonous snake-bites, spasms, etc., and is the most effective cure for toothache that I know of. This seed sells here for twenty-five cents apiece."—*Pharmaceutical Journ. and Trans.*, February 7, 1885.

NOTE ON AN IMPURITY IN ETHER.

While in India last year C. J. H. WARDEN, M.D. (*Pharmaceutical Journal and Transactions*, January 3, 1885) accidentally discovered that all the samples of ether in his laboratory, when agitated with an aqueous solution of potassic iodide, liberated iodine, and communicated a yellow or dark-reddish color to the solution, the ether remaining colorless.

On agitating the ether first with a strong aqueous solution of potassic hydrate, or solid caustic potash, the caustic potash solution was colored yellow and the solid hydrate encrusted with a dark, reddish-yellow deposit, and the ether, thus purified, no longer possessed the power of liberating iodine from iodide of potassium.

The samples of ether tested had all been received from well-known English druggists, and the bottles were labelled "Ether pur. B. P." Since he has been in Europe he has only had an opportunity of examining one specimen, and this also liberated iodine. On examination, however, it will probably be ascertained that most of the ether in the market responds to the test. He has not been able to investigate the cause of the reaction ; it is very possibly due to the presence of aldehyde in the ether, and this view receives support from the action of the ether on caustic potash, already described, the yellow coloration being caused by the formation of aldehyde resin.

As ether is now extensively employed as an anæsthetic, and as aldehyde (assuming its presence) is not inert, its presence, or that of any

other impurity, in the drug intended for inhalation must be considered objectionable. Aldehyde is described as possessing a peculiar ethereal, suffocating odor, and its vapor, when inhaled in large quantity, produces a cramp, which, for a few seconds, takes away the power of respiration (Liebig). The question suggests itself, may not the peculiar, suffocating sensation often experienced during ether-inhalation be caused by the presence of this compound?

The test Dr. Warden describes may be applied in two ways; 2 or 3 drachms of the ether are poured into a test-tube, and about a drachm of a freshly-prepared solution of iodide of potassium in water added, the tube corked, and the contents well agitated. If the ether be pure, on looking down the tube, while standing on a white surface, no yellow coloration of the aqueous stratum will be apparent. The other plan of applying the test is to add a few drops of starch mucilage to the ether and iodide of potassium solution, and then to agitate; if iodine be liberated, it is recognized by the bluing of the starch.

BEETS AS A LOCAL APPLICATION IN INFLAMMATION.

Dr. Frederick P. Jones, of Mill Village, N. H., writes us that in a number of cases of erysipelas that he has recently had in his practice, in which he used various external applications, among them grated blood-beet used as a hot poultice, under its use pain and inflammation were quickly subdued. He also employed it as an external application, with some anodyne liniment (morph. sulph. and fluid extract of gelsemium), in facial neuralgia, with satisfactory results.

PHOSPHORATED TOLU FOR PHOSPHORUS PILLS.

Mr. A. C. Abraham, in a paper read before the Liverpool (Eng.) Chemists' Association, recommends the use of phosphorated tolu in preparing phosphorus pills. His *tolu phosphoratum* is prepared as follows: Place the tolu and phosphorus in a suitable enamelled iron basin, capable of holding about forty ounces, and containing about twenty ounces of water. Heat the basin in a water-bath, and when the ingredients are thoroughly melted stir with a glass rod until particles of phosphorus can no longer be seen, taking care that the ingredients are not brought above the surface of the water. Continue the stirring constantly for fifteen minutes, remove the basin from the water-bath, place it under a tap, and pour over it cold water. When sufficiently cool, mix it further under the water with the hands for a short time, and finally place it under water in earthenware jars. One grain contains one-twenty-fifth grain of phosphorus. A drop or two of some volatile liquid should be added immediately after crushing the tolu in the mortar, and before the addition of the excipient. A pill made with one grain of phosphorated tolu, equal to one-twenty-fifth grain of phosphorus, when examined by the microscope, is found to be composed of ten thousand particles,—a sufficiently fine division to justify its being regarded a satisfactory preparation.—*Weekly Drug News*, March 7, 1885.

ELIMINATION BY THE GASTRIC MUCOUS MEMBRANE OF DRUGS GIVEN SUBCUTANEOUSLY.

Dr. Leineweber, of Göttingen, in tracing the ultimate fate of remedies exhibited hypodermically, found that the soluble salts of morphine, atropine, quinine, and strychnine were partially eliminated by the gastric mucous membrane. Their presence could be proven by both chemical and physiological tests in water introduced into the stomach. This secretion was observed to begin about ten to twenty minutes after the application of the drug, provided the dose employed was sufficiently large or toxic, and to last until death ensued. Even after death the salts are still to be found in the stomach. Iodide of sodium could be ascertained only in minute quantities, while the recovery of salicylate of sodium, of calomel, and chloride of lithium was quite ample. It could not be experimentally ascertained whether traces of a drug existed in the gastric mucous membrane after the exhibition of small, subcutaneous doses.

This elimination by the stomach is favored by drugs which depress the circulation and lower arterial tension.—*Schmidt's Jahrb.*, March 10, 1885.

TREATMENT OF DIABETES INSIPIDUS.

Of the various drugs which are held to exert a curative influence upon diabetes insipidus, ergot has been successfully employed by various practitioners, such as Da Costa, Macaulay, Williams, and Lacy (*Schmidt's Jahrbücher*, March 10, 1885). Da Costa noted a very decided improvement under its use in five

cases, and attributes this effect to capillary contraction in either the kidneys or the nervous centres. Given in a dose of 1 to 2 drachms of the fluid extract three times daily, the drug causes rarely any inconvenience. Valerianate of zinc and the tincture of valerian seem likewise to induce a favorable termination of this affection, if persisted in for a sufficient length of time. Such is the testimony of Lunin, Prior, and Cole, who used these drugs in a number of instances. Kennedy prefers the dilute nitric acid (f℥i to f℥v pro die in water), though admitting that this drug is apt to cause unpleasant after-effects, which are occasionally of sufficient gravity to forbid its continuation. Althaus and Clubbe found protracted faradization of the renal zone or galvanization of the medulla oblongata to also give satisfactory results.

ON THE ACTIVE PRINCIPLES OF ERGOT —CORNUTINE AND ERGOTININE.

In a recent work DR. KOBERT announces that he has extracted from ergot three new active principles, which he does not pretend to be chemically pure, as his only object was to obtain them physiologically pure. He calls them *ergotinic acid*, *sphacelenic acid*, and *cornutine*.

Ergotinic Acid (*Ergotinsäure*).—This acid constitutes the greater part of the old sclerotic acid of Messrs. Dragendorf and Podwissotzki. Its preparation depends upon its property of being precipitated from its solutions by the ammoniacal acetate of lead,—a property already attributed to their acid by his predecessors.

It is amorphous, of acid reaction, and very hygroscopic. It contains nitrogen, and it is difficult to obtain it free from magnesia and lime.

Bonjean's ergotine and many German ergotines contain quite a quantity of it.

According to the experiments of this author, in doses of 1 gramme given in hypodermic injections to a rabbit, the animal becomes very somnolent, and all his extremities are benumbed. It reduces considerably the pressure of the blood. Injected into the veins in toxic dose, it brings death by paralysis of the respiratory centres. The ergotinic acid does not act on the uterus.

Sphacelenic Acid (*Sphacelinsäure*). — This acid is insoluble in water and soluble in alcohol. Its preparation depends upon these properties. It is also difficultly soluble in fixed oils, ether, and chloroform. It is the basis of the resin of ergot or ergotine of Wiggers. It readily decomposes when ergot is kept too long; it also becomes an inert substance through careless chemical manipulation. Therefore it must be prepared with fresh ergot, and during that preparation its action must be ascertained at every treatment. The resinous acid does not contain nitrogen.

The most remarkable property of the sphacelenic acid is that of drying and blackening the crest of cocks. It is said that it produces the gangrene which has been pointed out in the epidemics of ergotism,—gangrene attributed by certain authors to the resin of ergot. Dr. Kobert says also that in those epidemics it is the cause of that peculiar disease of the crystalline lens which induces cataract.

Cornutine (*Cornutin*).—To begin with, the author declares that cornutine is not identical with ergotinine. Though its chemical properties are as yet little known, he, however, thought proper to give provisionally a name to its alkaloid,—*i.e.*, cornutine.

The preparation of that alkaloid depends upon its easy solubility in alcohol and upon its property of being removed from its alkaline solutions by shaking with acetic ether.

Very large quantities of ergot pulverized, not deprived of oil, are treated by displacement with chlorhydric acid at three per cent. The liquors passed are almost neutralized with carbonate of soda and *evaporated*. The residuum is treated by alcohol; the alcohol is distilled, and the residuum is rendered alkaline by the carbonate of soda worked up by washed acetic ether, and from which, by shaking with water containing citric acid, the cornutine is extracted with other inert alkaloids.

"On account of the very small quantity of cornutine obtained from ergot, he has not been able, up to the present time, to ascertain the chemical composition of the new alkaloid. He only knows that it can be precipitated in alkaline solution by the sublimate, that it is partially decomposed by evaporation of its solution in alkalies, and that its chlorhydrate and its citrate are easily soluble in water. Besides, it is a fact that the alkaloid can be extracted from oil of ergot dissolved either in ether or in essence of petroleum by shaking with running water, citric, chlorhydric, or sulphuric acid. During its preparation it can be heated on the water-bath in chlorhydric solution for many hours, and it does not lose much of its strength, *as has been demonstrated by experiments made on frogs*.

"It is possible that ergotinine and cornutine have close chemical relations, and it is also possible that, in some conditions not yet ascertained, they are converted one into the other, for with the same quantities of ergot, sometimes more cornutine is obtained, sometimes more ergotinine. In a chemical point of view, they principally differ because the cornutine is more soluble than the ergotinine; besides, the cornutine is greatly toxic, while the ergotinine is not."

These results are, however, contested by M. C. TANRET (*Pharmaceutical Record*, April, 1885), in the following terms:

1. If to begin the conditions for the preparation of the cornutine, you expose for more or less time to the air an acid solution of ergotinine (with heat the transformation is more rapid) you see it becoming more and more colored, and finally the product that it contains answers to the few reactions which the German author has attributed to cornutine. *Therefore cornutine is only some ergotinine more or less greatly adulterated.*

2. The cornutine, so far, has only been experimented upon with animals, while already for some years the ergotinine has entered into medical practice.

Its physiological action on *man* is known; it is certain that it lowers the temperature, that it decreases the frequency of the pulse, and that it contracts the vessels by acting on the muscular fibre. Without being greatly toxic, ergotinine, in the hands of M. Dujardin-Beaumetz, brought on colics, nauseas, and vomitings, when at first he administered it in doses of 3 to 5 milligrammes in hypodermic injections. With parturient persons, whose susceptibility in regard to ergot is often very great, Mr. Budin, by giving a dose of 1 milligramme only, has sometimes seen ergotinine provoking vomitings and more or less toxic accidents. Therefore it is not precisely an inert alkaloid.

In regard to its action on the uterus, in the treatment of hemorrhage *post partum*, ¼ of a milligramme of ergotinine (representing 25 centigrammes of ergot) is sufficient to obtain a good and strong contraction. The effect of ergotinine is immediate, and, in cases where the use of ergot is admissible, the hemorrhage quickly ceases.

EXAMINATION OF JAMAICA DOGWOOD.

MR. MAURICE SCHLESINGER publishes the following account of his results obtained in an examination of Jamaica dogwood (*Pharmaceutical Record*, April 1, 1885):

1. Eight ounces of bruised Jamaica dogwood were infused in two quarts of boiling water for twenty minutes and strained. The liquid was then evaporated to dryness, and portions of the residue were respectively agitated with ether, chloroform, benzole, and carbon bisulphide. These solutions were filtered, and successively evaporated to dryness; the residues separately dissolved in water, acidulated with tartaric acid, and filtered. Portions of above solutions were titrated with solution of platinic chloride, Sonnenschein's and Mayer's reagents, and other alkaloidal tests, yielding no precipitates, thus indicating absence of alkaloids.

2. Sixteen ounces of Jamaica dogwood in No. 20 powder were made into a paste with quicklime and water, and the mixture dried. This was exhausted with five pints of officinal alcohol. The tincture was filtered and the alcohol distilled off until the liquid became of a syrupy consistence, when four ounces of water acidulated with tartaric acid were added, and again subjected to heat until the remaining alcohol was considerably distilled off, and the solution filtered while warm, thus retaining the calcium which might still have been present on the filter (calcium tartrate being insoluble in warm water). An odorous greenish-yellow oleo-resin, weighing twenty-four grains, remained on the filter.

The filtrate gave a copious precipitate with Sonnenschein's reagent (solution of phosphomolybdic acid), and a slight precipitate with Mayer's solution, also with solution of sodium in iodide of potassium, indicating the presence of an alkaloid.

On agitating the filtrate with successive portions of ether, decanting the ethereal layer, mixing these, and allowing to evaporate spontaneously, a grayish-white amorphous powder, weighing two and a half grains, remained. On testing this powder it was found to be slightly soluble in water, giving no alkaloidal reactions, and on being heated on a watch-crystal with solution of caustic potassa was immediately blackened. On testing with Schlagdenhauffer's solution (equal parts of an alcoholic three per cent. solution of guaiacum and a saturated solution of bichloride of mercury) to distinguish alkaloids from glucosides, it gave no blue coloration, thus proving it to be a glucoside. The solution was now heated, in order to drive off the ether which still remained, and caustic soda added until decidedly alkaline.

This was again treated with ether as before, but on allowing the ether to evaporate it left

no residue. The acidulated solution on standing deposited a flocculent acid resin. Water precipitates a light-brown resin from concentrated tincture. The bark is very rich in tannin, giving a black precipitate with iron salts. From the above examination it may be inferred that the active principle of the drug resides in an alkaloid, the presence of which has been demonstrated, although not yet isolated.

PARTHENINE—A NEW REMEDY.

Dr. José Ramirez Tovar gives in *La Cronica Medico Quirurgica*, of Havana, the results of his experiments with *parthenine*, an alkaloid derived from *Parthenium Histerophorus*. One of the first cases was a strong and vigorous woman of 34 years, who suffered from an insupportable facial neuralgia, which became worse at a certain hour every day. One gramme of parthenine was ordered, divided into ten papers, one to be taken every hour. She began to feel relief after taking three of the papers, and the next day passed without experiencing the usual exacerbation. Small doses were recommended afterwards to sustain the action of the first doses. She disregarded the advice, and as a result, she returned on the fifth day again complaining of the neuralgia, but this time not so severe as before. A few more doses of the parathenine cured the affliction, for she had no attack during the succeeding five months. Two cases of intermittent fever were also successfully treated with parthenine. A little child who had suffered for seventeen days irregularly from fever, drowsiness, and anorexia, and who had derived no benefit from quinine, showed marked improvement in twenty-four hours after using parthenine, and in three days the temperature was normal. The results in all of Dr. Tovar's cases have been so striking that he feels confident that parthenine, if it come into general use, will not disappoint the hopes that have been built upon it.

THE PHYSIOLOGICAL ACTION OF THE SULPHATE OF CINCHONAMINE.

Professor Vulpian lately communicated a note to the Academy of Sciences, in the names of Professor Germain Sée and Dr. Bochefontaine, who had made a series of experiments to determine the physiological action of the sulphate of cinchonamine; the following are the conclusions arrived at by these gentlemen: Cinchonamine appears to have a powerful action on the heart, and it was observed that arrested action of the heart was an almost constant phenomenon resulting from the influence of that alkaloid. This occurs during diastole, a special feature which characterizes only a limited number of poisons, of which muscarine is an example. But when a drop of a solution of atropine was allowed to fall on the heart, the diastole was replaced by systole, whereas the effect of cinchonamine was to provoke persistent diastole. Sée and Bochefontaine proved that cinchonamine is a most violent poison, but that its effect is not easily determined.—*Journ. of the Amer. Med. Association*, April 4, 1885.

THE USE OF IPECACUANHA IN DYSENTERY.

At a meeting of the Medical Society of London, held March 9, 1885, Dr. MacPherson read a paper on the history of the use of ipecacuanha in dysentery, pointing out the curious fluctuations in the popularity of ipecacuanha as a remedy for this disease. The drug was introduced into European practice during the last decade of the seventeenth century, as a remedy for the bloody flux; in this malady, according to contemporary authors, it acted like a charm. Helvetius considered it as specific in dysentery as cinchona in malarial fever, or mercury in syphilis. After reigning supreme for half a century, it fell into some disgrace both in England and in France; but it was habitually used in small doses until the end of the last century. Akenside used very small doses, 1 grain every six hours; but other physicians recommended either one large dose or several smaller ones (5 grains) repeated every hour until vomiting was produced. Subsequently, very large doses, even frequently repeated, were highly fashionable in the tropics; but the drug was almost beaten out of the field by mercury as a remedy for dysentery, though never entirely abandoned. In 1846, Dr. Parkes said that ipecacuanha was of quite secondary importance; still, he recommended scruple doses. Sir Ranald Martin used doses of 10 grains at least. Since 1858 the use of ipecacuanha had been the main feature in the treatment of dysentery, and though something must be put down to improved hygiene and the abandonment of bleeding, still, the diminution of the mortality

among the troops pointed to the probability that the drug was really of use in saving life. The French also now used the drug in large doses in the tropics, and in America Bartholow and others had found it useful. From a consideration of the general experience, Dr. MacPherson was inclined to say that the dose should not exceed 30 grains, nor fall below 5. He referred to the temporary popularity of mercury during the first half of the present century, and mentioned that even scruple doses of calomel were at one time commonly given, and were supposed to have a specific action on the mucous membrane in dysentery. Ipecacuanha had now entirely replaced it.—*British Medical Journal*, March 14, 1885.

A CASE OF POISONING BY DUBOISINE.

Dr. Adolph Alt reports in the *American Journal of Ophthalmology*, February, 1885, the case of a man aged 32, who came under his treatment for non-specific iritis of the right eye. The patient was put to bed in a dark room, atropine was instilled and leeches applied, the pain being relieved by an application of a four per cent. solution of cocaine. As the pupils were not dilated after the constant use of atropine for several days, sulphate of duboisine was substituted for the atropine. This solution the patient received at nine o'clock in the evening. He used three drops of it, and at midnight the nurse noticed that he was talking wildly, looked flushed, and tossed about in his bed, and therefore removed all medicine from him. In the morning he jumped out of bed and tried to run off, but fell down powerless. Sulphate of morphine, $\frac{1}{8}$ grain, and chloral hydrate, 15 grains, were given every half-hour, and when Dr. Alt saw him at two o'clock the same day, his face was flushed, pulse 136, skin dry. He complained of very severe headache, dry throat and mouth, and himself recognized that he was out of his mind. The treatment mentioned above was continued, but in the evening he was still delirious, and was becoming more restless. The morphine and chloral were therefore increased. He slept from midnight till morning without waking, and then dozed nearly all day. His pulse was 84, and the dryness of his skin had given way to a slight moisture. All symptoms of poisoning gradually disappeared. As the solution of the sulphate of duboisine contained 2 grains to the $\frac{1}{2}$ ounce of water, and as he had used three drops of this solution, he had been poisoned by three doses of $\frac{1}{120}$ grain, or $\frac{1}{40}$ in all, and nearly 2 grains of morphine and $\frac{1}{2}$ ounce of hydrate of chloral were given before he recovered.

THE TEACHINGS OF THE PARIS CHOLERA EPIDEMIC.

Dr. Dujardin-Beaumetz recently communicated to the French Academy of Medicine some interesting data concerning the recent epidemic of Asiatic cholera in Paris (*Deutsche Medizinal Zeitung*). The first case appeared during the 3d, the last on the 15th of November. November 5, when the general condition of the city was one of remarkably good health, there were already reported in Paris, at several places simultaneously, some ten or fifteen cases. The epidemic rapidly increased up to the 10th. Comparing the mortality of this epidemic, viz., 4.05 deaths for each 10,000 inhabitants, with that of former epidemics, the following result is obtained: 1832, of 10,000 inhabitants, 234.16 died; 1873, 4.6 died; 1884, 4.05 died. This proves the gradual but certain decrease in the severity of the epidemics. In Toulon last year 669 persons died of cholera, viz., 12.6 of each 1000 inhabitants; but considering the great number of individuals that left the city, or suffered from the disease somewhere else, the mortality-rate has in fact been a higher one. The same may be said of Marseilles, where 49.4 died of each 10,000. Certain it is that weak and sickly persons, as also specially "topers," contributed by far the greatest majority of deaths. An attempt to connect the march and spread of the disease with the distribution of the water had to be given up. Two aqueducts run parallel in the streets of Paris, one carrying the water from the Ourcq, the other from the Vanne. To determine the mooted question, it would have been necessary to inquire in every house from which line the water consumed had been procured; and even then the result would not have been deciding, as both lines so intimately anastomose with each other that it is an impossibility, in most houses, to say from which line the water had been obtained. But the information has been, nevertheless, gained that the districts provided with water from the Ourcq suffered most severely, or rather, that in the sections most affected this water was the one by far most used. Of special salutary effect seem to have been the police measures for the transport and the disinfection of the sick and their residences.